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ABSTRACT

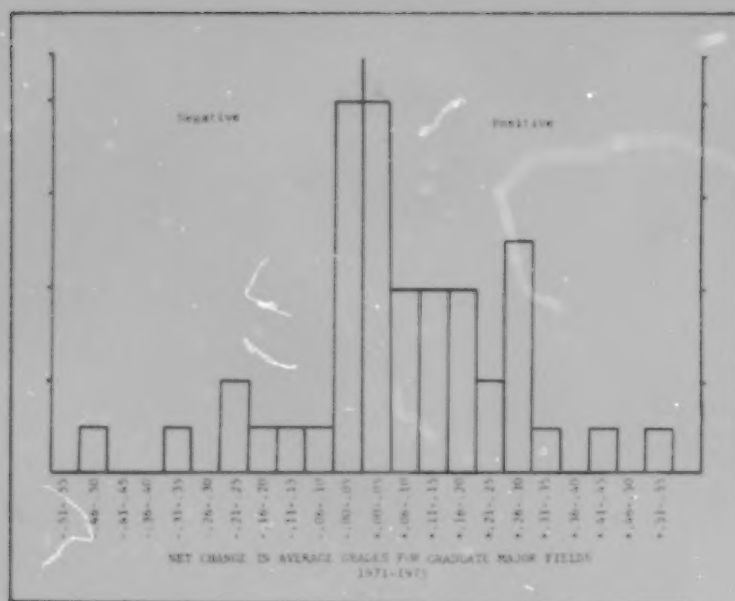
This study analyzed grades for 55 graduate major fields to determine whether or not there are differences in the grading patterns of the various fields. The study population consisted of 7,002 graduate students with 80,011 grades. The study period extended from fall 1970 through fall 1975. Across the range of graduate major fields of study, grades for quantitative and objective courses tended to be lower than grades in specialty disciplines. There was no systematic grade inflation or deflation within graduate majors during the study period; grades in only 12 major fields changed by more than a quarter of a letter. There was little variability in average graduate grades, since A's and B's are overwhelmingly assigned in graduate courses. The measured background and antecedent characteristics for students in these major fields were weakly associated with course grades. The study provides evidence to support the hypothesis that grading in higher education has been changing due to the addition of new programs of study to the curriculum and a shift of enrollments away from the traditional curriculum. (Author/HSE)

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GRADUATE STUDENTS' GRADES FOR 55 MAJOR FIELDS: A MULTIVARIATE STUDY

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GRADUATE STUDENTS' GRADES FOR 55 MAJOR FIELDS:

A MULTIVARIATE STUDY

James E. Prather

and

Janet E. Kodras

Report No. 78-10

October, 1977

Office of Institutional Planning
Georgia State University

Other Studies in this Research Series
on Grading Practices
at Georgia State University

"Faculty Grading Patterns." James E. Prather and Glynton Smith. Report No. 76-12, April, 1976. Included in ERIC Resources in Education, 1977, Vol. 12, p. 89 (Order No. ED 129 172).

"An Analysis of Undergraduate Grades by Course in Relation to Student Ability Levels, Programs of Study, and Longitudinal Trends." James E. Prather and Glynton Smith. Report No. 76-15, May, 1976. Included in ERIC Resources in Education, 1977, Vol. 12, p. 89 (Order No. ED 129 166).

"The Relationship of Major Field of Study with Undergraduate Course Grades: A Multivariate Analysis Controlling for Academic and Personal Characteristics and Longitudinal Trends." James E. Prather, John E. Williams, and Janet E. Kodras. Report No. 77-3, August, 1976. Included in ERIC Resources in Education, 1977, Vol. 12, p. 98 (Order No. ED 132 898).

"A Multivariate Analysis of Student Grades in 138 Graduate Courses." James E. Prather and Janet E. Kodras. Report No. 77-9, January, 1977. Included in ERIC Resources in Education, 1977, Vol. 12, No. 11 (Order No. ED 146 731).

Abstract

This study has analyzed grades for 55 graduate major fields to determine if there are differences in the grading patterns of the various fields. The study population consisted of 7,002 graduate students with 80,011 grades. The study period extended from Fall, 1970 through Fall, 1975.

Across the range of graduate major fields of study, grades for quantitative and objective courses tended to be lower than grades in specialty disciplines. This tendency holds true even for graduate students with majors in one of the objective fields. Rigorous grading disciplines are distinctly stringent for all students regardless of major.

Individual graduate students tend to specialize in one particular area. Business, education, and social science majors, in particular, concentrate in their respective fields. Certain types of courses show a broad popularity for a wide range of majors, however. For instance, methodology based disciplines (Information Systems, Mathematics, Quantitative Methods, Decision Sciences) and social science courses are often well attended by students majoring in the professional fields. Humanities disciplines are infrequently taken by students outside that area except for closely allied professional majors.

There was essentially no systematic grade inflation or deflation within graduate major fields during the study period. Grades in only twelve major fields changed by more than one quarter of a letter.

There was a small degree of variability in average graduate grades because A's and B's are overwhelmingly assigned in graduate courses. The average for all major fields was in the middle B range. Graduate grades are less predictable than undergraduate grades due to the smaller amount of variance.

The measured background and antecedent characteristics for students in these major fields were weakly associated with course grades. These characteristics included personal ones such as age, sex, and minority status as well as nationwide proficiency test scores.

The empirical findings of this study provide evidence to support the hypothesis that grading in higher education has been changing due to the addition of new programs of study to the curriculum and a shift of enrollments away from traditional curriculum. Grades are a function of the interaction of faculty standards, student aptitude and characteristics, and program of study. It is the program of study that policy making in higher education can most readily influence.

Acknowledgements

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**GRADUATE STUDENTS' GRADES IN 55 MAJOR FIELDS:
A MULTIVARIATE ANALYSIS**

Recent articles in professional journals and in the popular media have expressed concern about a decline in the quality of higher education. A national survey of higher education faculty members illustrated the concern among faculty about academic standards. A major finding was that more than ninety percent of those responding felt that "grade inflation" was a serious problem (Ladd & Lipset, 1977, p. 14). The majority of those surveyed agreed that there had been a widespread lowering of academic standards and that too many poorly prepared students were presently enrolled (Exhibit 1). Those faculty members in "mass" higher education institutions (Tiers 3 and 4) were the most troubled about changing standards.

EXHIBIT 1

**Faculty Members' Opinions
on Standards of Higher Education**

	<u>Too many ill-suited people are now enrolled</u>		<u>Lowering of standards has been widespread</u>	
	<u>Agree</u>	<u>Disagree</u>	<u>Agree</u>	<u>Disagree</u>
Type of institution*				
Tier 1	58%	42%	69%	31%
Tier 2	68%	32%	77%	23%
Tier 3	73%	27%	82%	18%
Tier 4	74%	26%	82%	18%
Academic rank				
Professor	82%	18%	82%	18%
Associate professor	80%	20%	77%	23%
Assistant professor	80%	20%	80%	20%
Instructor	76%	24%	80%	20%
Self-described ideology				
Very liberal	58%	42%	72%	28%
Somewhat liberal	77%	23%	82%	18%
Moderate	69%	31%	76%	22%
Conservative	77%	23%	85%	15%

* Classifications based on academic standing, from elite research universities (Tier 1) to junior colleges and lesser 4-year institutions (Tier 4).

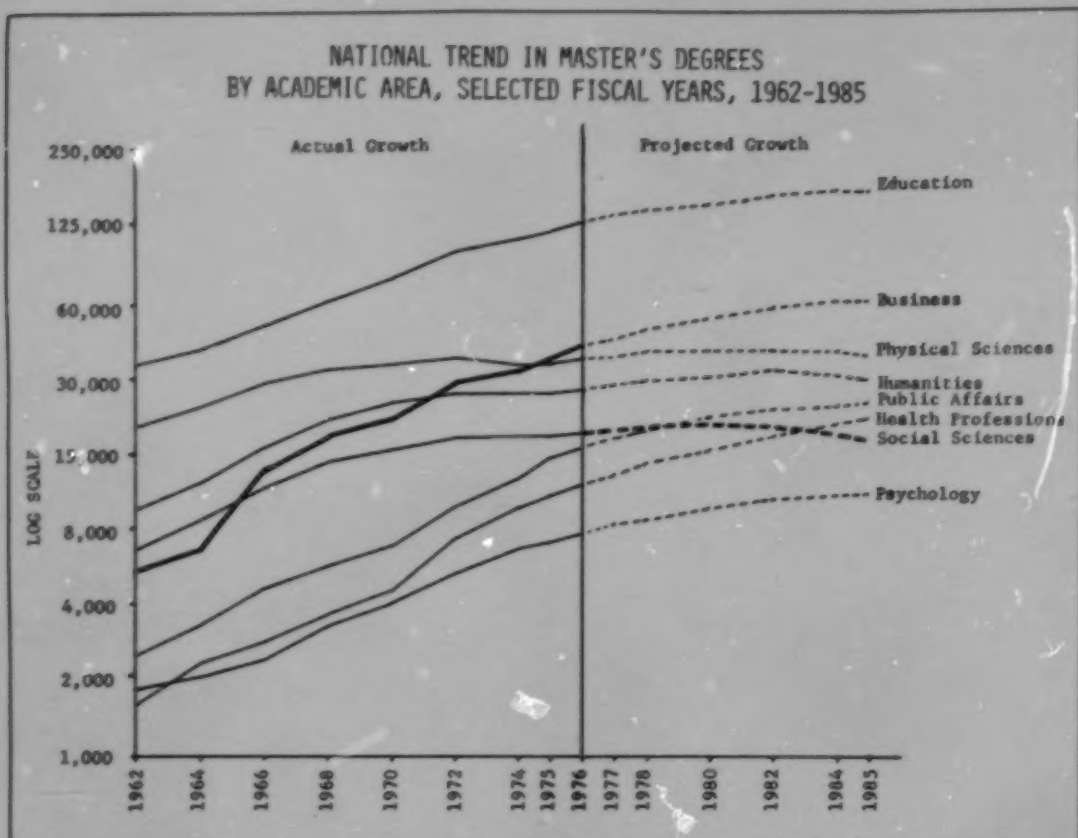
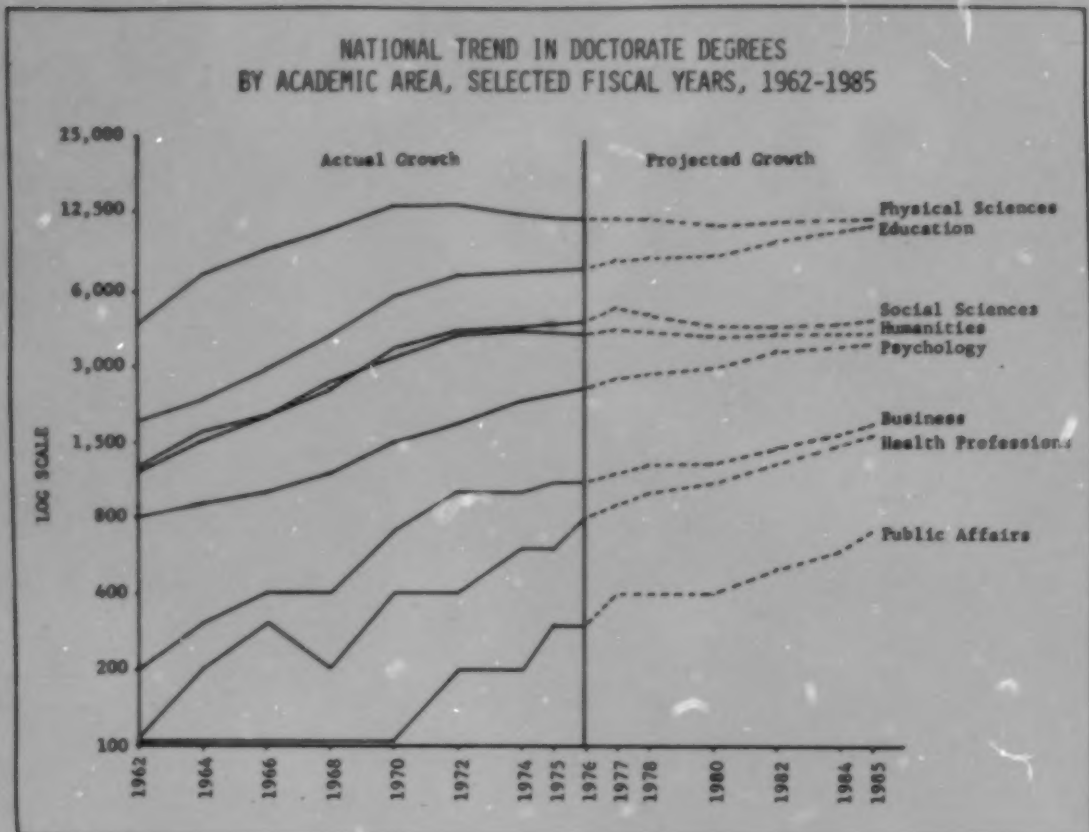
Source: Ladd and Lipset (1977, p. 14)

Are the recent changes in higher education grading patterns the result of a change in academic standards and type of students? Higher education has experienced many changes. Such factors as open admissions, growth in public universities, federal funding, inflation, and economic recession have certainly influenced the direction of higher education. In addition, the evolution of graduate education can be clearly seen in the shifts in graduate programs and enrollments.

The new graduate degree programs have grown substantially in recent years and are expected to continue in their expansion (Exhibit 2). Growth rates show that enrollments in the traditional fields are stabilizing while enrollments in the recently popular professional fields are increasing. This restructuring and expansion of the curriculum creates additional options for students who may select courses, majors, and degree programs tailored to their specializations. Often, the result is a higher grade point average for the individual student. Has there been a systematic increase in average grades for courses or major field of study which would illustrate a change in standards or type of student? On the other hand, are higher individual GPA's, which critics point to as evidence of grade inflation, a partial result of changes in the program of study?

The link between grading patterns and program changes has been corroborated for undergraduate courses, undergraduate major field of study, and graduate courses in the previous reports of the series. This study analyzes the interaction between graduate major field of study and grades. Specifically, the study addresses the following questions:

- (1) What is the longitudinal trend in graduate grades by major field?
- (2) Do different graduate major fields exhibit measurably different grading patterns?
- (3) Does specific course type affect grades within major field?



Source: American Council on Education, A Factbook on Higher Education, 11
Earned Degrees, Fourth Issue, 1976.

- (4) Do measureable student personal and academic characteristics affect grades?

In answering these questions, we intend to determine empirically if different graduate major fields have different grading patterns.

Previous Grading Studies

"Grade inflation", like many other concepts used by the popular media, lacks a clear, empirical referent. Everyone, it seems, is familiar with grade inflation and causes, such as the Vietnam war, new admissions policies, and a general decline in the quality of society as a whole, have been offered. These sweeping explanations have not been empirically verified, however. The curriculum in higher education is a dynamic and interacting system, reacting to a complex set of diverse demands from society in general and within the higher education community specifically. The resultant changes in higher education were studied by Blackburn et al. (1976) who analyzed the undergraduate curriculum and its impact on the education process. The Blackburn study found that during the late 1960's and early 1970's, there was a radical change in undergraduate curriculum from traditional core, general programs of study to specialized, narrow fields of concentration.

Faculty grading practices have been investigated, showing that faculty members' opinions about grading correlate strongly with their academic disciplines (Oh, 1976). Oh showed that natural science faculty members generally were more objective about and had more confidence in their grading practices than other faculty members. Goldman and Widowski (1976) reported that when grades were compared for the same students across the courses they were taking, substantial differences were found between disciplines. They noted that natural science courses had comparatively lower grades than other courses taken by the same students.

Hartnett and Centra (1977) studied grading standard differences between departments in a university. Their major conclusion was that significant differences do exist in the grading procedures between individual departments, and therefore the standards and effects of higher education should be studied at the departmental, rather than the university, level. They conclude: ". . . often institutions represent little more than an administrative framework for a variety of separate- and often quite distinctive-divisions, departments, or other academic units." (p. 492).

Whitbeck (1977) studied actual grade practices for a graduate library science program and compared his findings to the perceptions of grading by faculty, potential employers, and students. He found that although there was no evidence of grade inflation during the ten year study period, the majority of the faculty and approximately half of the students responding felt that "serious" grade erosion had occurred. Faculty, students, and potential employers agreed that grading was relatively unimportant in evaluating library science students.

Level of student ability can be correlated with the type of courses attempted. In Goldman et al. (1974) it was shown that lower ability students tend to major in fields with lenient grading standards and higher ability students are most often in major fields with rigorous standards. Goldman and Hewitt (1975) investigated this hypothesis using data from four campuses of the University of California. They reported that major fields which had large proportions of lower ability students appeared to have adapted standards that incorporated the lesser ability levels without a concurrent decline in average grades. McDonald (1967) observed a similar but reverse relationship between student ability and average grades for Georgia State University. When the institution changed from an "open-door" admissions policy to selective admissions in the early 1960's, grades did not show an average increase as the general

student ability level increased.

In a previous study of this research series on grades at Georgia State University, student grades were analyzed for graduate courses (Prather and Kodras, 1977). The study found that even within the restricted range of graduate grades, there exists considerable variation in grades by course type. There was not a systematic pattern of grade inflation or deflation during the five year study period. Student individual GPA's might be rising, the result of greater choices in the program they select to study, but aggregate course grades have not risen.

Research Design

Sample

The study sample contains 7,002 graduate students who had attempted 25 or more hours as of Fall Quarter, 1975 and were also enrolled in one or more courses during the period Summer Quarter, 1974 through Fall Quarter, 1975. 80,011 grades were recorded for 55 individual major fields of study, covering the period from Fall, 1970 to Fall, 1975.

All graduate major fields for which information was available were analyzed in the study and findings presented. The smallest fields, however, are statistically inconclusive and should be studied with caution.

Variables

As operationally defined for this study, "grade inflation" is a consistent, systematic increase in average grades received by those students in a particular major for all their graduate course work, controlling for ability, course type, and background. This procedure does not control for maturation effects over the five year period and therefore is a liberal measure of grade inflation.

The variables used to measure student demographic characteristics were: sex, minority status, age, and veteran status. The academic variables used were cumulative grade point average (at Georgia State University), major field of study, and credit hours attempted. Ability level was operationalized as standardized test scores for the Graduate Record Examination (GRE) consisting of verbal (V) and quantitative (Q) parts; the Graduate Management Admission Tests (GMAT) made up of total (T), verbal (V) and quantitative (Q) parts, formerly known as the Admission Test for Graduate Study in Business (ATGSB); and the Miller's Analogy Test (MAT).

Model

To analyze the large body of data for the 55 major fields, the analytic model was stepwise multiple regression (ordinary least squares). This flexible and powerful technique permits comparable analyses between diverse majors. The technique is exploratory and focuses on empirical findings, rather than testing formal, a priori hypotheses. Since grade analysis is still in the formative stage, this procedure allows the empirical regularities of the data to be ascertained.

The model was specified as follows:

- (1) The response variable (dependent) was the final letter grade across the curriculum within major field of study using the 4.0 scale where A = 4, B = 3, C = 2, D = 1 and F and WF = 0 (incompletes and withdrawal grades were excluded).
- (2) A curriculum factor was incorporated by using dummy variables for each of 38 predominant course types.
- (3) To ascertain the trend of grades over time--grade inflation--dummy variables representing the year a course was taken were included.
- (4) Additional carrier variables (independent) are the demographic and academic background variables employed for control purposes.

- (5) Test scores and age were not available for every individual student. When a variable had a missing value, the mean value for the appropriate variable was substituted. To determine the impact of this method of handling missing data, dummy variables were constructed which indicated where the missing values were inserted (Cohen & Cohen, 1975). This technique allows an objective measure of the impact of missing data on the dependent variable.

Results of the individual regression analyses for the 55 major fields are presented in the Appendix. The tables of graduate majors in the Appendix are ordered by the HEGIS (Higher Education General Information Survey) taxonomy. This is a standardized numbering system of program areas used by many institutions so that cross-institutional comparisons can be made.

Four measures are listed on each table in the Appendix, including the sample mean, the standard deviation, the number of grades and the number of students in a major field. The sample mean is the average grade on a 4.0 scale for a particular major field during the period 1971-75. The standard deviation (S.D.) gives an indication of how students in a major field range about the mean. The number of individual grades used in the regression equation is indicated as is the number of students for the particular major.

To determine which course areas a major field received significantly higher or lower grades in, the course estimator should be studied in relation to its standard error. If the estimator of a variable is at least twice as large as its standard error, there is evidence that the variable has a systematic effect on the grades for a major field.

Change in Grades Through Time

Average grades within the majority of graduate major fields changed slightly from 1971 to 1975. The net change in grades for all fields was an increase of .05 of a letter grade controlling for measureable antecedent factors.

A summary of the year-to-year changes in grades for the 55 graduate majors is presented in Chart 1. The regression estimators for each year, 1971 through 1975, have been extracted from the individual major analyses in the appendix. These estimators may be used to gauge the change, in the proportion of a letter grade, that grades have evidenced since 1970. For example, the 1971 estimator for Physical Resources majors is .45 and the 1975 estimator is .20. The total average grade change for Physical Resources majors, then, was a decrease of .25 (one-quarter) of a letter grade.

Two-thirds of the graduate major fields increased in average grades between 1971 and 1975 although most of these changes were small (Exhibit 3). Only one field, Chemistry, increased by more than half a letter grade (+.53) while average grades for seven majors increased by one-quarter to one-half a letter grade:

English	+.28
Mathematics	+.28
International Business	+.29
Music Education	+.30
Early Childhood Education	+.30
Spanish	+.32
Insurance & Risk	+.43

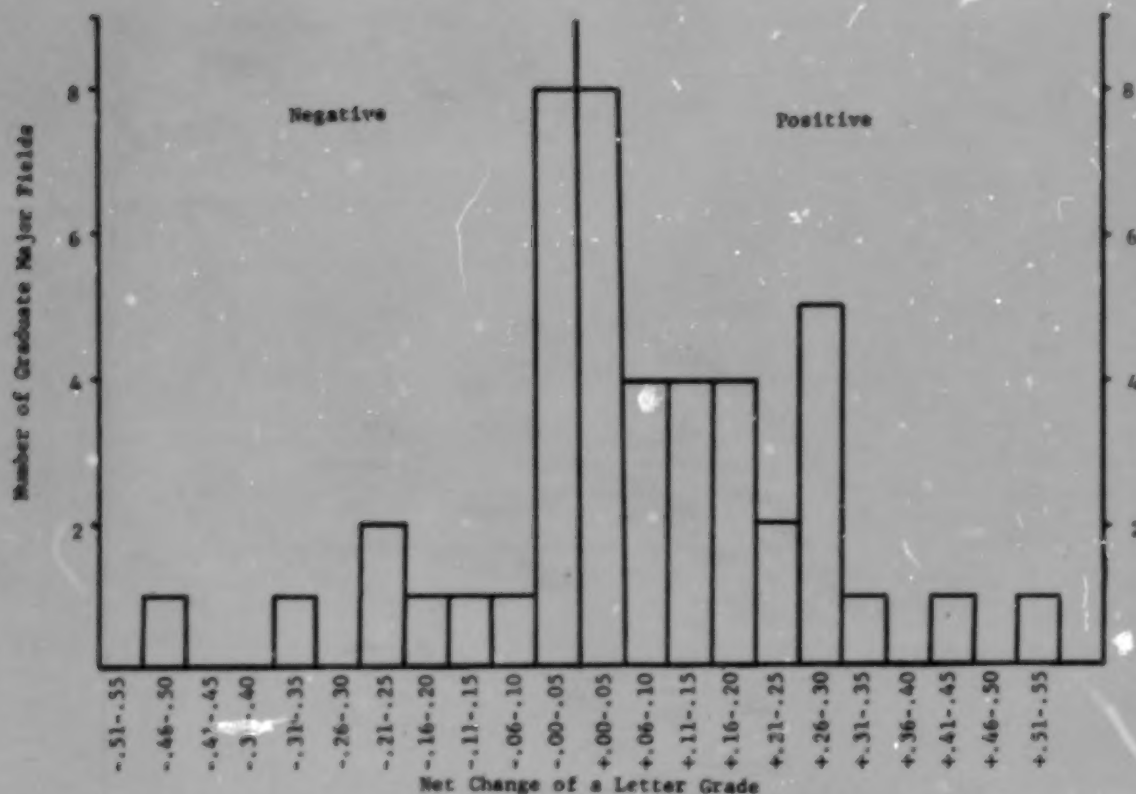
Most decreases in average grades by major field were small also. No major declined by more than half a letter grade and only three decreased from one-quarter to one-half a letter grade:

Physical Resources	-.25
Physics	-.35
Urban Administration	-.49

CHART 1
SUMMARY BASED UPON REGRESSION EQUATIONS FOR 55 GRADUATE MAJORS

Table No.	Major	Sample Mean Grade	Regression Estimators						R ² (Adjusted)	N (Grades)	No. of Majors
			1975	1974	1973	1972	1971	Constant			
1	Physical Resources	3.31	.20	.27	.19	.38	.45	-1.72	.36	307	30
2	Human Resources	3.43	.22	.33	.25	.15	.23	-.34	.44	282	28
3	Biology	3.53	-.65	-.58	-.51	-.57	-.47	-.63	.27	539	57
4	Accounting	3.27	-.11	-.04	.02	-.04	-.12	.64	.28	3010	253
5	Actuarial Science	3.29	-.35	-.41	-.44	-.26	-.11	-.09	.35	351	8
6	Finance	3.35	-.24	-.17	-.14	-.24	-.32	.03	.27	3951	43
7	Management	3.33	-.31	-.27	-.28	-.30	-.19	3.38	.29	4478	369
8	Marketing	3.29	.19	.20	.15	.17	.07	-.15	.36	1308	99
9	Real Estate	3.18	-.28	-.18	-.16	-.11	-.35	-1.12	.33	554	46
10	Insurance & Risk	3.41	.26	.18	.24	.14	-.17	.36	.27	658	48
11	International Business	3.24	.21	.16	.19	.16	-.08	-.38	.33	662	50
12	Library Science Media	3.73	.09	.10	.09	.05	.05	-.32	.33	982	111
13	Decision Sciences	3.57	.33	.33	.29	.43	.36	-.36	.27	599	39
14	Information Systems	3.42	-.08	-.08	-.004	.07	-.03	1.64	.35	953	73
15	Music Education	3.55	-	-.06	.17	-.03	-.36	.63	.22	935	73
16	Elementary Education	3.63	-.44	-.46	-.47	-.45	-.55	.50	.27	9347	940
17	Secondary Education	3.54	-.15	-.14	-.16	-.16	-.18	.18	.33	5559	558
18	Special Education	3.66	-.45	-.48	-.51	-.54	-.47	.76	.32	5856	549
19	Educational Foundations	3.72	-.01	-	-.04	-.21	-.18	-.44	.41	532	47
20	Early Childhood Education	3.61	-.13	-.13	-.23	-.20	-.43	-.07	.27	2371	69
21	Educational Administration	3.56	.43	.44	.34	.33	.27	-1.12	.26	3271	293
22	Educational Leadership	3.73	.14	.19	.16	.15	.15	1.17	.20	6018	361
23	Reading Specialist	3.64	-.11	-.12	-.16	-.24	.15	.11	.30	1124	114
24	Art Education	3.55	.19	.06	-	-.01	.04	-.40	.16	239	26
25	Business Education	3.57	-1.03	-1.05	-.96	-1.02	-1.07	.73	.26	1235	133
26	Art	3.67	.15	-	-.0002	.05	-.10	-.18	.21	407	47
27	Art History	3.52	.00	-	-.33	1.25	-	-1.44	.86	25	4
28	Music History & Literature	3.64	.21	-	-.04	.32	-	-.47	.36	84	6
29	Applied Performance	3.71	.06	.15	-.17	-	-	-1.21	.16	135	11
30	Musicology	3.72	-	-.25	-.91	.64	.09	3.30	.24	18	3
31	Theory	3.59	-.13	-.11	.38	-	-	1.76	.22	49	6
32	French	3.63	-	-.04	.76	-.36	-.25	.51	.27	152	16
33	German	3.55	-.61	-.31	.12	-.15	.03	.98	.37	67	7
34	Spanish	3.44	.48	.42	.44	.34	.16	-1.41	.15	227	21
35	Health Administration	3.56	.001	-.10	-.23	-	-	.71	.20	600	39
36	Medical Technology	3.57	.21	.35	-	-	-	-.26	.41	270	20
37	English	3.58	-.02	-.07	-.13	-.15	-.30	.21	.26	1295	130
38	Mathematics	3.53	.69	.61	.54	.55	.41	.06	.47	468	47
39	Physics	3.45	-.12	-	-.02	.18	.23	.27	.34	154	18
40	Chemistry	3.50	.78	.58	.64	.50	.25	.56	.21	297	22
41	Psychology	3.75	.35	.27	.26	.30	.21	-.56	.20	2981	185
42	Counseling & Psychological Services	3.67	-.14	-.09	-.05	-.08	-.12	-.16	.26	8608	669
43	Urban Administration	3.25	-.11	-	-.02	-.37	.38	-.23	.43	334	31
44	Urban Government & Administration	3.54	-.28	-.30	-.01	-.32	-	-.19	.35	46	4
45	Government Administration	3.45	-.02	.01	.05	.03	.03	.19	.26	1224	114
46	Economics	3.44	-.27	.27	.29	.26	.25	-.54	.38	999	69
47	Land Economics & Urban Affairs	3.48	-.42	-.34	-.24	-.22	-.40	.33	.24	288	17
48	History	3.56	.03	.05	-.07	-.06	-.05	-.09	.27	670	61
49	Geography	3.64	-	.11	.08	.05	-.04	-.10	.19	176	17
50	Political Science	3.51	.01	-.02	.02	-.09	-.17	-.61	.33	681	61
51	Sociology	3.61	-	-.01	-.04	.28	-.03	.13	.37	493	47
52	Criminal Justice	3.29	.28	.29	.20	.22	.12	-.04	.31	494	47
53	Philosophy	3.42	.31	-.03	-	-	-	.94	.53	40	5
54	Physical Education	3.45	-.11	-.04	-.03	-.05	-	.26	.25	1151	125
55	Undeclared	3.56	.02	.05	.02	.03	.03	-.36	.30	2454	241

EXHIBIT 3

NET CHANGE IN AVERAGE GRADES FOR 45 GRADUATE MAJOR FIELDS
1971-1975

Ten fields were removed from consideration because there were fewer than 10 students or less than 4 years of data.

Average grades for most major fields fluctuated irregularly during the study period. The two exceptions were English and Geography which increased in average grades each year of the period.

Variation in Average Grades Within Major Fields

There were insubstantial differences in average grades between the assorted major fields. For each major, the mean sample grade and constant term are summarized in Chart 1.

The range of sample mean grades for the individual major fields is only half a letter grade. The field of Psychology had the highest mean sample grade (3.75) as compared to Real Estate which had the lowest mean grade (3.18). All major fields showed mean sample grades of B.

The sample mean grade gives the average of all sampled grades for each major field. The constant term, on the other hand, indicates the "base" grade within majors after statistically controlling for characteristics of the sample. For these majors, a comparison of the constant term and the sample mean grade is indicative of the influence of the dependent variables (such as course type, personal characteristics, and aptitude) upon grades. As a general guideline, the social sciences, urban life, and some business major fields show the largest divergence between mean sample grade and constant term. For the physical sciences, however, there was a small difference between constant and mean sample grade.

Analysis of Major Field by Course Type

Chart 2 illustrates how graduate students in 55 major fields perform in 38 different course types, from Accounting (AC) to Vocational and Career Development (VCD). This summary chart is condensed from the individual major tables listed in the Appendix. The regression estimators gauge the impact that a certain course type has on performance in various major fields and are presented as the proportion of a letter grade. For example, given the types of courses that Physical Resources majors take, they average higher grades in Biology (.99) than they do in other courses. Physical Education majors, on the other hand, average lower grades in Biology (-.93) relative to other courses in their program of study.

Highlights of Chart 2, showing the relationships of course type to major field of study, may be summarized as follows:

CHART 2

ESTIMATED LETTER GRADE IMPACT OF COURSE DISCIPLINES FOR 55 GRADUATE MAJORS

Table No.	Major	Course Disciplines																		
		AC	ART	AS	BA	BED	BIO	BL	CHRM	CPS	DEC	EAS	EC	ECI	ED	ENG	FED	FI	GEOG	HA
1	Physical Resources				1.76		.99	1.91				1.44	1.17						1.22	
2	Human Resources									-.11		.33	-.11	.22			-.04		.29	.43
3	Biology						.12		-.21	-.02				.11			.18		.41	
4	Accounting	-.60		-.68	-.36			-.23		-.58		-.05	-.43	-.05			-.07	-.33	1.05	
5	Actuarial Science	.55		.31	.57			.52					.42				.86			
6	Finance	-.37		.30	-.05			.14	-.47	.42			-.23	.37			.19	-.11		.27
7	Management	-.01			.46	.60		.54		.64		.62	.35	.59	.09	.62	.99	.21		.85
8	Marketing	-.31			.01								-.06				-.30			
9	Real Estate	-.45						-.03					-.34	.92			-.08			
10	Insurance & Risk	-.60		-.68	-.14			.13				-.30		-.36			.70	-.36		
11	International Business	-.41			.09			-.54					.12				.11			
12	Library Science Media	-.41	.15				.29		.25	.26	.18	.35		.17		-.02	.10		.27	
13	Decision Science	-.33		-.67				.28					-.20				.36	-.04		
14	Information Systems	-.48			-.18	.78		-.34					-.18	-.16			-.06	-.47		-.26
15	Music Education					.19	-.51			.27	-.23	.22	-.54	.10		-1.29	-.16			
16	Elementary Education	.51	-.04			.13				.09	-.05	.05	-.18	.05	-.48	-.55	-.10		-.02	
17	Secondary Education	-.77	.12		-.13	.27	-.13	-.46	-.23	.22	-.05	.16	-.09	.29	-.10	-.17	.19	-.27	.28	
18	Special Education		-.27		-.15	.49	-.47			-.24	-.14	-.04	-1.22	-.20	-.66	.26	-.19		.12	
19	Educational Foundations		-.55		-.30					-.18		-.20	.003	.17		.37	.01			
20	Early Childhood Education		-.08							.39	.21	.21	-.07	.28		.23	.06			
21	Educational Administration	.35	.84		.23	1.00	.21	-.19	-.40	.28	.21	.30	.33	.33	.72	.17	.33	-1.30	.51	
22	Educational Leadership	-.41	.15		-.03	.14				.004	.04	.05	.12	.12	.04	-.23	-.004	-.52	-.04	-.16
23	Reading Specialist						-.10	-.19	-.23	.42	.27	.30	-.16	.24		-.17	.17		.94	
24	Art Education		.37							-.21		.47		.72			.38			
25	Business Education	.56	-.17		.48	.52				.68		.59	.62	.55		1.52	.90			
26	Art		.08											.23			-.10			
27	Art History																			
28	Music History & Literature															-.47	.79			
29	Applied Performance																			
30	Musiology		-.08											-.09						
31	Theory																			
32	French									.20						-.36	.79			
33	German													.39		.08	.27			
34	Spanish				.20											-.26	.05			
35	Health Administration	-.86			-.48			-1.06					-.50					-.27		-.31
36	Medical Technology								.35					.18			-.14			-.67
37	English									-.18		-.25		.07		-.17	-.02			
38	Mathematics	-.57		-.96							-.24		-.87				-.07			
39	Physics											.72		.48			.61			
40	Chemistry				-.25	-.17		-.56						-.81			-.92			
41	Psychology		-.30		.40	-.52			.52	.33	.37	-.45		.26		.36	.41			.33
42	Counseling & Psychological Services	-.12	.73		.68	.40		-.16		.49	.47	.41	.56	.50	.50	.27	.92		-.96	
43	Urban Administration	-.63						.46				.14	.10	.83			-.17			
44	Urban Government & Administration							.65				.36								
45	Government Administration	-.43			-.10			-.09		.08		-.29	-.45	-.07	.07		.21	-.54		-.59
46	Economics	-.61			-.11			-.29					-.24	-.23			-.23	-.31		.32
47	Land Economics & Urban Affairs	-.80			-.16			-.04					-.63				-.25		-.75	
48	History									.39			-.27	.05		-.36	.07		.31	
49	Geography												.30	.21		.27	.16		.13	.62
50	Political Science	-.88			-.003			-.34		-.11		.19	.14	.10			-.06	.03	.07	
51	Sociology	-.79							.55	.60		.18	-.29				.37		-.06	
52	Criminal Justice				.25			.58	.76	.56			.51	.35			.72			
53	Philosophy															-.91				
54	Physical Education		-.12				-.93		-.41	-.76	-.20		-.22			.66	-.25		.28	
55	Undeclared	-.65	-.15		.02	-.10	-.30	.12	-.19	-.04	-.05	-.08	-.06	.03	-.20	-.14	-.06	.06	.29	.01

CHART 2 (Continued)

ESTIMATED LETTER GRADE IMPACT OF COURSE DISCIPLINES FOR 55 GRADUATE MAJORS

Table No.	Major	Course Disciplines																		
		HIST	MPRS	ENG	IS	LAM	MATH	MGT	MR	MUS	PHD	PHYS	POLS	PSY	QM	RE	SOC	SPE	UL	VCD
1	Physical Resources				-.04		1.08	1.02					1.18	.49		1.31	1.04		1.24	
2	Human Resources	-.60		.15	-1.36			-.33						.13			.32	-.79	-.08	
3	Biology				-.32		.37	.11				.35		.41			.28	.59		.72
4	Accounting	-.98		-.47	-.68	.41	-1.07	-.31	-.46	-.51			.05	-.95	-.57	-.29		-.66		-.26
5	Actuarial Science			.55	.62		.59	.38	.07			1.35	.39	.47		.18				
6	Finance	-.38		-.02	-.32		.35	.02	-.26		-.33			.74	-.16					
7	Management			.28	.22		.65	.26			.97		.70	.13	.25	.46	.86		.75	.32
8	Marketing	-.12		-.20	-.18		.17						-.15	.07	-.29	-.10		.65		
9	Real Estate			.79	-1.32		.21							-.03	.11				1.32	
10	Insurance & Risk	.17		.02	-.31		-.34	-.06	-.44				.14	-.54	-.21		.71			
11	International Business			.59	-.20		.17	-.001					1.95	-.18						
12	Library Science Media	.27			.76	.32					.26						.47	-.05		
13	Decision Science				-.25		-.34		-.19					-.05			.90	.24		
14	Information Systems			.42	-.14			-.13	-.09			.44		-.44						
15	Music Education		-.07			.12		-.54		.03	.50			.33	-.54			-.26	-.76	.10
16	Elementary Education	-.49	-.03		.64	.05	-.02	.43		.22	-.11	-.07	-.16	-.22			-.13	-.11	-1.04	.11
17	Secondary Education	-.19	.31		.04	.20	-.06	.28		.32	.16	.11	.09	.10	.67	-.20	.08	.24	-.53	.41
18	Special Education	-.26	.03		-.63	-.05	.02	-.19		.08	-.36	-.30	-.87	-.34	-.10		-.23	-.11	-.58	.02
19	Educational Foundations	-.36		-2.29	-.02	.05	-.16	-.57						-.20				-.17	-.86	-.09
20	Early Childhood Education	.09	.05			.47	.68		.46	-.20							1.20	.02		
21	Educational Administration	-.13	.16		-.43	.54	.33	.23	.10	.91	.54	.15	-.10	.20	.05		.09	.34	.11	.41
22	Educational Leadership	-.28	.11		-.38	.13	-.11	.09	-.21	.14	.05	-.14	-.13	-.09	-.60	.05	-.09	.07	-.13	.14
23	Reading Specialist					.39	-2.29							-.06				.10		
24	Art Education		.28						.60	-.21								.61		
25	Business Education				.37	.56		.54	.15	.50	.50	-.26	.53	.67			.50	.53		.65
26	Art		.51				.34		-.40	.57				.35				.17		
27	Art History																			
28	Music History & Literature						.33			.55										
29	Applied Performance	-1.80							-.27											
30	Musiology					-.82			.04									-1.09		
31	Theory								.06											
32	French	-1.32												.09			.21	-.21		
33	German	-.19					.35	.53					.33					.03		
34	Spanish	-.10					1.02	-.19	-.25							.66				
35	Health Administration			-.26	-.12			-.19												
36	Medical Technology				-.65			-.19				-.26								
37	English	.12				.35								.30			-.65	-.21		
38	Mathematics				-.49		-.14	-.10				.47								
39	Physics				-.21		-.48	-1.17						.47						
40	Chemistry				-1.32	-.78		-.25				-.67			-.19					
41	Psychology	.52		.34	.04			.35	.36			.62	.40	.31			.34	.27		
42	Counseling & Psychological Services	.35	.83	.97	.32	.89	.30	.47		.53	.56		-.03	.41	-.93		.54	.43	.18	.65
43	Urban Administration				-.25		-.29	.36	.53				-.02	.40			.03		.07	
44	Urban Government & Administration						-.06										.32		.35	
45	Government Administration		.72	.15	-.35		-.18	-.0003			.13		-.17	.22	-.38	-.10	-.09		-.08	
46	Economics	-.18			-.57		.0004	-.08	-.28				.15	-.06	-.28	.02			.43	
47	Land Economics & Urban Affairs			-.52	-.34		.13	.06	.002					-.72	-.05				.10	
48	History	-.21	-.19								-.29		-.19	.08	-.27		.08		-.60	
49	Geography	-.04			-.18		.28	-.05	-1.30				-.21			.09			.07	
50	Political Science	-.15			-.95		-.23	.15					-.07	-.21	-.94	.75	.11	.25	-.06	
51	Sociology				-.30		-.31	-.11					.44	.55	.29	.06	.31	-.03	.21	
52	Criminal Justice				-.11		-.20	.42					.17	.18			.49		.18	
53	Philosophy																			
54	Physical Education	-.61	-.14			-.14		.05		-.13	-.26	.13	-.31	-.49			-.61	-.35	-.64	
55	Undeclared	-.52	-.18	-.51	-.51	.09	-.10	.10	-.21	.20	-.04	-.32	-.27	-.17	-.19	.39	-.09	-.02	-.04	.20

Accounting (AC): Most major fields of study recorded negative estimators in Accounting. Positive weights were registered for Actuarial Science (.55), Elementary Education (.51), Educational Administration (.35), and Business Education (.56). Students in these majors performed better in Accounting than average for their course work.

Art (ART): Major fields, for which estimators are available, recorded a relatively balanced distribution of negative and positive weights.

Actuarial Science (AS): Estimators existed for only six major fields and of these, four were strongly negative while two were weakly positive.

Business Administration (BA): Graduate majors in Physical Resources recorded the highest of all estimators (1.76) for Business Administration. Other major fields were balanced in negative and positive coefficients.

Business Education (BED): Many major fields registered positive weights, most notably Educational Administration with an estimator of 1.00. Chemistry (-.17), Psychology (-.52), and Undeclared majors (-.10) were exceptions with negative estimators.

Biology (BIO): There was a balance of negative and positive weights for major fields in Biology. Physical Resources (.99) recorded the highest estimator while Physical Education (-.93) registered the lowest.

Business Law (BL): While the major fields showed a balance of negative and positive estimators, Physical Resources (1.91) had a very large positive coefficient and Health Administration (-1.06) showed a large negative coefficient.

Chemistry (CHEM): There was an even number of major fields with positive and negative weights and most of these estimators were small.

Counseling and Psychological Services (CPS): Counseling and Psychological Services had an even distribution of negative and positive impacts for major fields.

Early Childhood Education (DEC): With the exception of Physical Education (-.76), most majors registered estimators ranging close to zero for this education course type.

Educational Administration (EAS): The graduate majors generally registered positive weights and, of these, students in Physical Resources (1.44) performed best of all fields on average.

Economics (EC): Notable major fields in Economics courses were Special Education (-1.22) with a large negative estimator and Physical Resources (1.17) with a large positive estimator.

Curriculum and Instruction (ECI): Estimators exist for almost all major fields. Most education and social science fields registered weak, positive coefficients. Real Estate (.92) recorded a much higher positive weight than did other business fields.

Music Education (ED): Students taking Music Education were represented primarily by the education major fields. There were no notably large positive or negative weights for any of these fields.

English (ENG): Students in Business Education (1.52) performed better of all fields in English while Music Education (-1.29) and Philosophy (-.91) majors had the lowest weights.

Educational Foundations (FED): Estimators existed for almost all majors, the principal exceptions being Business and Fine Arts. No major field recorded large positive or negative weights.

Finance (FI): Of the majors for which estimators were available, Educational Administration (-1.30) recorded the lowest coefficient.

Geography (GEOG): Accounting (1.05) and Physical Resources (1.22) majors had large positive estimators while Counseling and Psychological Services (-.96) registered a large negative estimator. Other fields were balanced in positive and negative weights.

Health Administration (HA): Twelve major fields recorded estimators for Health Administration and, of these, more were positive than negative.

History (HIST): History had a definite negative weight on all major fields especially Accounting (-.98), Applied Performance (-1.80), and French (-1.32).

Health, Physical Education, Recreation, and Safety (HPRS): More positive than negative estimators were recorded for this course type but the majority were miniscule.

Insurance and Risk (INS): A large negative weight was noted for Educational Foundations majors (2.29) in Insurance and Risk.

Information Systems (IS): Information Systems had a negative impact in almost all major fields especially Human Resources (-1.36), Real Estate (-1.32), Chemistry (-1.32), and Political Science (-.95).

Library Science Media (LSM): There was a uniform distribution of negative and positive estimators for the different major fields in this course area.

Mathematics (MATH): The two major fields with especially large negative weights were Reading Specialist (-2.29) and Accounting (-1.07). The two largest positive weights were recorded in Physical Resources (1.08) and Spanish (1.02).

Management (MGT): Physics (-1.17) registered a low weight in Management while Physical Resources (1.02) was strongly positive.

Marketing (MK): The major fields were evenly distributed in negative and positive estimators. Geography (-1.30) recorded a very low estimator.

Music (MUS): A noteworthy positive weight for music was Educational Administration (.91). Most other fields were also positive but weaker.

Physical Education (PED): Major fields were evenly distributed in negative and positive weights. Management (.97) had the largest estimator for this course area.

Physics (PHYS): The Actuarial Science major (1.35) recorded the largest positive estimator. Other fields showed weaker weights.

Political Science (POLS): There were more negative than positive weights for Political Science. The two major fields with the largest positive weights were International Business (1.95) and Physical Resources (1.18).

Psychology (PSY): There was an even distribution of negative and positive weights. No major field had a particularly large estimator, positive or negative.

Quantitative Methods (QM): The two majors with the largest negative scores were Political Science (-.94) and Counseling and Psychological Services (-.93).

Real Estate (RE): Once again, Physical Resources (1.31) had the largest positive estimator. Other major fields showed no particular positive or negative trend.

Sociology (SOC): Early Childhood Education (1.20), Physical Resources (1.04), and Library Science Media (.90) averaged high grades in Sociology.

Special Education (SPE): The lowest estimator for Special Education was in Musicology (-1.09). Other fields were even in the distribution of negative and positive coefficients.

Urban Life (UL): Real Estate (1.02) and Physical Resources (1.24) had the largest positive estimators while Elementary Education (-1.04) was the largest negative estimator.

Vocational and Career Development (VCD): All but two of the major fields for which estimators were available registered positive weights. None of the estimators for this course area were large positive or negative coefficients.

Analysis of Major Field by Student Characteristics

In the preceding sections, the analysis was concerned with change in average grades over time, as illustrated in Chart 1, and the relationship of different course types, as exhibited in Chart 2. Demographic and academic antecedents of graduate students were also included in the specification of the regression model and these coefficients are presented in Chart 3. Highlights of Chart 3 showing the relationship of student characteristics and grades within major fields are summarized as follows:

CHART 3

ESTIMATED LETTER GRADE IMPACT OF PERSONAL AND ACADEMIC CHARACTERISTICS FOR 55 GRADUATE MAJORS

Table No.		Demographic Data					Test Scores						Missing Values							
		Age	Female	Veteran	Minority	Hours Attempted	GPA	GRE Quant	GRE Verbal	GMAT Total	GMAT Quant	GMAT Verbal	MAT	Age	GRE Quant	GRE Verbal	GMAT Total	GMAT Quant	GMAT Verbal	MAT
1	Physical Resources	-.004	-.02		.09		1.19							-.05						-.24
2	Human Resources	.003	.07		.02	-.002	1.02							.18						
3	Biology	-.01	.02	-.06	.08	-.002	1.02	-.0002	.0004					-.16		.02				
4	Accounting	.0004	.01	-.02	.01	-.001	.93		.0004		.001		-.001	-.12				-.01		.22
5	Actuarial Science	.01		-.05	-.06		.98													.10
6	Finance	.001	.03	.01	-.01	-.0003	.95			.01		-.001	.01	-.01		-.03				.26
7	Management	.0001	.01	.02	.01	-.001	.97			-.002	.02		-.07	-.03	-.16		-.04		-.02	
8	Marketing	-.002	-.02	-.01	.05	-.001	1.01		.0003	.0002	-.002							-.07		
9	Real Estate	.01	.04	.02	-.27	-.002	.91			.02	-.10	-.11								
10	Insurance & Risk	.004	.01	-.05	0.07	.002	.90			-.002	.01	.01		-.01			.03			
11	International Business		-.01		.04	.0002	.97			.0004				-.05			.06			
12	Library Science Media	.001	.01	-.03	.004	.001	.97					.0003		-.10	.01					.01
13	Decision Science	.001	-.04	-.01		-.001	1.08			.0001		-.002		.02	.03					-.38
14	Information Systems	-.002	-.03	-.01	-.06	-.0001	.96				-.001			-.02						.05
15	Music Education	-.002	.02	-.01	-.07	-.003	.92	.0004	-.0004					-.002						.002
16	Elementary Education	.0002	.01	.01	.004	.0004	.97						-.001	-.01						.02
17	Secondary Education	.0003	.03	.01	-.02	.001	.95							-.01	-.01					.01
18	Special Education	-.001	-.01	-.004	-.01	.001	.96							.002	.03					-.03
19	Educational Foundations	.01	-.01	-.04	-.01	.001	1.04							.003						.004
20	Early Childhood Education	.002	-.04	-.08	-.02	.001	.96				.02			.0004	-.01					.02
21	Educational Administration	.0002		-.02	-.01	.001	.96							-.01						.01
22	Educational Leadership	-.001		-.01	-.02	.0002	.93		-.002				-.001	-.04						
23	Reading Specialist	-.001	-.03		-.01	.002	.95													
24	Art Education	-.001	-.04	-.28	-.05	.001	.92	.0003	.0002							-.04				.21
25	Business Education	-.001	.02	.03	-.01	-.001	.94						-.002	.03						.02
26	Art	-.001	-.01	.05	-.06		1.01	-.0002	.0004						.15	.02				
27	Art History		-.15				1.40													
28	Music History & Literature		.08		.01		.99		-.0004				-.01							
29	Applied Performance		.15			.001	1.28	.001												
30	Musicology						.20													
31	Theory	-.06	-.19				1.01													
32	French	-.001		.08		.002	.88	-.0002					.01	-.03			.05			
33	German	-.01					.71	-.001	.002							-.35				
34	Spanish	.004	.07	-.35	-.16	.003	.96	.001								.02				
35	Health Administration	-.004	.17	.07	.05	.001	.78			.001		-.01		.09			.14			.26
36	Medical Technology		-.04	-.06		.06	.97						.01	-.09						.10
37	English	.001	-.03		.02	.001	.92	.00004	.0001				.002	.05	.03					-.11
38	Mathematics	-.01	-.09	.12	-.08	-.001	.99	-.0004	.0002					.14	.002					
39	Physics	-.02	-.09	.04	-.17	-.003	.96			.001						-.17				
40	Chemistry		.14	.09	-.28	.003	.92	-.001	-.0004											
41	Psychology	-.001	-.01	.01	.03	.001	.95		-.0001				.003	-.05		.004				.07
42	Counseling & Psychological Services	-.001	.002	-.01	-.01	-.0001	.94						.001	.01						-.004
43	Urban Administration	-.01		.09		.004	1.07							.12						
44	Urban Government & Administration		-.16				1.10						-.001							
45	Government Administration	-.0003	-.03			-.002	.99			.002			-.02	.02						
46	Economics	.001	-.05		.01	.0004	1.02	-.0001	-.0004	.06	-.002	.02				.12				
47	Land Economics & Urban Affairs		-.15	-.01	.11	-.001	1.04			.0003				.08	-.03					
48	History	.004	-.01	-.03	-.03	.001	1.00	.0002					-.001					.13		
49	Geography	.002	.08	-.03	-.05	.002	.78	.002	-.001					.01	-.05					.35
50	Political Science	-.01	-.07		.09	-.001	.90	.001	-.0003				-.01	-.14		-.12				.09
51	Sociology	-.01	.04	.02	-.04	-.004	1.03						-.002	.07						
52	Criminal Justice	-.01					.62													
53	Philosophy	.01					1.01						.001	-.03						.01
54	Physical Education	-.001	-.03	-.03	-.02	.0004	.92	-.0004		.001		-.01		.01					.03	.02
55	Undeclared		-.04	-.03	-.03	.0001														

Demographic Characteristics

Age: There was an equal number of positive and negative estimators for the 55 majors but no coefficient was of the magnitude to have any notable effect in the average grade for a major field.

Female: There was an equal number of positive and negative estimators for the sex variable also. On average, females within these majors had slightly higher grades for Health Administration (.17) and Applied Performance (.15) but lower grades on average for Art History (-.15), Music Theory (-.19), Urban Government (-.16) and Land Economics (-.15).

Veteran: Estimators for veteran status were positive for most of the Arts and Sciences major fields but negative for most of the Education and Business fields.

Minority: This variable exhibited a large positive estimator for Physics (.17) but relatively large negative estimators for Spanish (-.16), Chemistry (-.28), and Real Estate (-.27).

Hours Attempted: Estimators for the hours attempted variable are typically small. For Education majors, generally, the more hours attempted, the higher the average grade. On the other hand, Business majors average higher grades the fewer hours they attempt.

Academic Characteristics

GPA: The GPA variable is included as a control measure of overall academic performance. The coefficients for this variable should be in a narrow range around 1.00. The coefficients in this study evidenced the anticipated relationship.

GRE-Quantitative and GRE-Verbal: Estimators exist for fewer than half the majors and show no consistent trend in describing the relationship of the Graduate Record Exam on major field.

GMAT Total, GMAT Quantitative, and GMAT Verbal: Estimators for the Graduate Management Admissions Test exist only for the various Business majors and there is no notable trend of positive or negative associations on these fields.

MAT: Estimators for the Miller's Analogy Test show an even distribution of positive and negative relationships.

Missing Values for Selected Variables

Age: There was no notable impact between the average grades of most major fields and missing age data, although a slight positive relation was found for Human Resources (.18) and Art (.15). A weak negative impact was noted for Biology (-.16).

GRE Quantitative and GRE Verbal: There is not enough information on missing GRE data to interpret a trend.

GMAT Total, GMAT Quantitative, and GMAT Verbal: Not enough information is available to interpret the estimators.

MAT: More positive than negative estimators exist for major fields. The largest positive estimator was in Political Science (.35) and the largest negative estimator was in Information Systems (-.38). In general, Political Science majors who were missing MAT Scores had higher average grades than those who had reported their scores. Information Systems majors who were missing MAT scores averaged lower grades.

Summary of Selected Major Fields

This section contains a major-by-major summary highlighting overall performance of selected major fields.

Physical Resources: Students majoring in physical resources showed a distinct pattern of higher average grades in a broad range of course types.

Biology: Biology majors performed well in most of the courses studied.

Accounting: Low average grades were typical for accounting majors especially in education and some business courses.

Actuarial Science: These business majors generally did well in the range of business courses studied.

Finance: By contrast, Finance majors typically performed less well in business courses.

Management: Across the range of courses studied, Management majors averaged high grades in most course areas.

Insurance & Risk: Average grades for these majors increased by .43 of a letter grade during the study period. Overall, they averaged low grades in most business courses.

International Business: An increase of .29 of a letter grade was recorded for this major field from 1971 to 1975. Estimators exist for business courses and political science only. They performed poorly in most quantitative, substantive business courses.

Library Science Media: These majors recorded slightly higher average grades in most of the course areas which were studied.

Decision Sciences: Low average grades were recorded in most substantive courses for this major field.

Information Systems: Information Systems majors generally performed less well across the range of business courses.

Music Education: During the study period, average grades for Music Education majors rose .30 of a letter grade. They tend to do well in most education courses but poorly in quantitatively based courses.

Elementary Education: These majors tend to make lower than average grades in a broad spectrum of courses.

Secondary Education: Secondary education majors average higher in their education courses but lower in their substantive fields.

Special Education: Majors in special education showed many lower than average grades.

Educational Foundations: There were a number of lower course type estimators for Educational Foundations majors.

Early Childhood Education: From 1971 to 1975, average grades for these education majors increased by .30 of a letter grade. They averaged higher grades in most of the courses studied.

Educational Administration: These majors recorded coefficients for almost all courses in the study. Of these, Educational Administration majors averaged higher grades across a range of courses.

Educational Leadership: In general, Educational Leadership majors recorded lower average grades in substantive courses but higher grades in broad discipline courses.

Reading Specialist: These majors typically perform well in the education courses they take.

Art Education: Only education courses were studied in relation to this major field. Art Education majors recorded higher average grades in most of the courses studied.

Business Education: Most of the courses studied had higher average grades for Business Education majors in general.

Art: Of the few courses studied in relation to Art majors, most of the average grades were high.

Spanish: During the study period, average grades for Spanish majors increased one-third of a letter grade. They averaged higher grades in most of the courses studied.

Health Administration: These business majors averaged lower grades in most business courses.

English: Average grades for English majors increased by one-quarter of a letter grade from 1971 to 1975. In general, they did well in liberal arts courses but poorly in professional, vocational disciplines.

Mathematics: Mathematics majors also averaged an increase of one-quarter of a letter grade during the study period. Most of the courses which were studied for Math majors recorded lower average grades.

Physics: A decline of .35 of a letter grade was the average grade change for Physics majors. In general, Physics majors did well in education courses.

Chemistry: The largest grade change during the study period was for Chemistry majors. From 1971-1975, average grades for Chemistry majors increased .53 of a letter grade.

Psychology: Majors in Psychology typically had higher average grades in the courses studied.

Counseling & Psychological Services: These majors averaged higher grades in most courses studied except for some social science and business courses.

Urban Administration: Average grades for Urban Administration majors declined by almost half a letter grade during the study period.

Urban Government & Administration: These majors had lower than average grades in most of the courses studied.

Economics: Economics majors received lower average grades in most business course areas.

History: Of the course types studied for History majors, most recorded lower average grades.

Political Science: Political Science majors tended to receive lower than average grades across many course types.

Sociology: Business courses recorded typically lower grades for Sociology majors while education and some social sciences recorded higher average grades.

Criminal Justice: Criminal Justice majors averaged lower grades in quantitative courses.

Physical Education: Physical Education majors typically received lower average grades in most of the courses studied.

Summary

This study has analyzed grades for 55 graduate major fields to compare the pattern of grades for the various fields. The study population consisted of 7,002 graduate students with 80,011 grades for the period from Fall, 1970 through Fall, 1975.

Across the range of graduate major fields of study, grades for quantitative and objective courses tended to be lower than grades in specialty disciplines. This tendency holds true even for graduate students with majors in one of the objective fields. Rigorous grading disciplines are arduous for all students regardless of major.

Graduate students as individuals tend to specialize in one particular area. Indicative of this specialization, Business, Education, and Social Science majors, in particular, concentrate in their respective fields. Certain types of courses show a broad popularity for a wide range of majors, however. For instance, methodology based disciplines (Information Systems, Mathematics, Quantitative Methods, Decision Sciences) and social science courses appear to be popular for the professional major fields. Humanities disciplines are infrequently taken by students outside that area except for closely allied professional majors.

There was essentially no systematic grade inflation or deflation within graduate major fields during the study period. Grades in only eleven major fields changed by more than one quarter of a letter. Of these, only Chemistry, with an increase of .53 of a letter grade, changed by more than half a letter.

There was a small degree of variability in average graduate grades because A's and B's are overwhelmingly assigned in graduate courses. The average for all major fields was in the middle B range. Graduate grades are less predictable than undergraduate grades due to the smaller amount of variance. The

goodness of fit, as measured by the R^2 adjusted for degrees of freedom, ranged widely among the major fields with a median R^2 of .28.

The measured background and antecedent characteristics for students in these major fields were associated weakly with course grades. These characteristics included personal ones such as age, sex, and minority status as well as nationwide proficiency test scores.

Discussion

The empirical findings of this study provide additional evidence to support the hypothesis that grading in higher education has been changing due to the addition of new programs to the curricula and a shift of enrollments away from traditional curricula. Students who pursue liberal arts degrees, until recently the predominant group attempting graduate degrees, are typically distinct in their approach to advanced degrees from those students who seek the newer, professional, vocationally-oriented graduate degrees. The consequences of this change in the mix of graduate students are greater enrollment variability, enrollment shifts between programs, and the problem of planning given these additional uncertainties.

A parallel development has been a change in the marketability of advanced degrees from the mid-1960's to the mid-1970's. The future of graduate education has been widely speculated upon. Trends in graduate education in the South have been discussed by the current president of the Southern Regional Education Board, Winfred L. Godwin, who wrote: "The continued overall growth in graduate degree production in the South - which is counter to the national slowdown - threatens to exacerbate an over-supplied employment market. Increases in some fields tend to reflect escalating pressures for credentialing more than demand or need" (Mingle, p. 222).

In the future, the obvious expectation is that as the currently expanding, vocational fields have more graduates, they too will decline in enrollments just as the liberal arts programs have in recent years. There is currently evidence at the undergraduate level of a resurgence in the traditional, liberal arts programs. It is expected that this trend at the undergraduate level will filter into the graduate program again altering the enrollment patterns.

In the past, when graduate programs consisted of a homogeneous and select group of students working predominantly in liberal arts programs, grading was used not as a means of ranking students but rather as a record of course completion. As the curriculum expanded and the graduate student group became more heterogeneous, an increased proportion of students became concerned with grading. Inconsistency in the meaning of grades exists when a grade in one graduate course is indicative of superior performance and in another course means only that the course has been completed. Having these various systems of grading implemented at the same time is inconsistent.

Grades are a function of the interaction of faculty standards, student aptitude and characteristics, and program of study. It is the program of study, however, that policy making in higher education can most readily influence. Students select and/or are directed to a discipline that most closely reflects their aspirations, abilities, and interests. Ultimately, the quality and performance of graduate students attracted to a university are closely associated with the prestige of the university as a whole, the prominence of the field, and the reputation of the department.

References

- American Council on Education. A Factbook on Higher Education, Earned Degrees. Fourth Issue, 1976.
- Blackburn, R., E. Armstrong, C. Conrad, J. Didham, and T. McKune. Changing Practices in Undergraduate Education, A Report for the Carnegie Council on Policy Studies in Higher Education. Berkeley: The Carnegie Foundation for the Advancement of Teaching, 1976.
- Goldman, R., D. Schmidt, B. Hewitt, and R. Fisher. "Grading Practices in Different Major Fields." American Educational Research Journal. 1974, 11, 343-357.
- Goldman, R. and B. Hewitt. "Adaptation-Level as an Explanation for Different Standards in College Grading." Journal of Educational Measurement. 1975, 12, 149-161.
- Goldman, R. and M. Widawski. "A Within-Subjects Technique for Comparing College Grading Standards: Implications in Validity of the Education of College Achievement." Educational and Psychological Measurement. 1976, 36, 381-390.
- Hartnett, R. and J. Centra. "The Effects of Academic Departments on Student Learning." Journal of Higher Education. September-October, 1977, 48, 5, 491-507.
- Ladd, E. and S. Lipset. "The Faculty Mood: Pessimism is Predominant." The Chronicle of Higher Education. October 3, 1977, 50, 5, pp. 1 and 14.
- McDonald, T. "An Investigation of the Effects of a Rapid Transition from 'Open Door' to 'Selective' Admissions." (Doctoral dissertation, Michigan State University, 1966). Dissertation Abstracts, 1967, 27, 4084. (University Microfilms No. 67-7579).
- Mingle, James R. Degree Output in the South, 1974-75. Atlanta: Southern Regional Education Board, 1977.
- Oh, E. "A Study of Instructor Grading Philosophies and Practices at Western Michigan University." (Doctoral dissertation, Western Michigan University, 1976). Dissertation Abstracts International. 1976, 36, 7239A-7240A.
- Prather, J.E. and J.E. Kodras. "A Multivariate Analysis of Student Grades in 138 Graduate Courses." Report No. 77-9, January, 1977. Included in ERIC Resources in Education, 1977, Vol. 12, No. 11 (Order No. ED 140 731).
- Whitbeck, G. "Grade Inflation in the Library School - Myth or Reality." Journal of Education for Librarianship. 1977, 17, 214-237.

Abbreviations

Selected Graduate Majors

Accounting
 Actuarial Science
 Art
 Art Education
 Biology
 Business Education
 Counseling and Psychological Services
 Criminal Justice
 Decision Sciences
 Early Childhood Education
 Economics
 Educational Administration
 Educational Foundations
 Elementary Education
 English
 Finance
 Health Administration
 History
 Human Resources
 Information Systems
 Insurance and Risk
 International Business
 Leadership Planning
 Library Science Media
 Management
 Marketing
 Mathematics
 Music Education
 Physical Education
 Physical Resources
 Political Science
 Psychology
 Reading Specialist
 Real Estate
 Secondary Education
 Sociology
 Special Education
 Urban Administration
 Undecided

Abbreviations

AC
 AS
 AR
 AE
 BS
 BE
 CP
 CJ
 DS
 ER
 EC
 EA
 EF
 EL
 EN
 FI
 HA
 HY
 HR
 IS
 IN
 IB
 LP
 LM
 MG
 MK
 MA
 ED
 PE
 PR
 PS
 PY
 RS
 RE
 SD
 SO
 SE
 UA
 NM

APPENDIX

PHYSICAL RESOURCE MAJORS

The adjusted R^2 was .36. Highlights may be summarized as follows:

- * Grade Trends through Time:
With a slight increase in grade averages in 1974, the trend in grades for physical resource majors has been slightly downward during the study period. Note that the estimators for each year except 1974 are lower than the previous year and fall one quarter of a letter grade (.25) between 1971 (.45) and 1975 (.20).
- * On the average, physical resource majors received higher grades in the following course areas: Business Law (1.91), Urban Life (1.24), Real Estate (1.31), Business Administration (1.76), Geography (1.22), Mathematics (1.08), Educational Administration (1.44), Political Science (1.18), Sociology (1.04), Economics (1.17), and Management (1.02). High average grades in this many course areas is extremely unusual.
- * Physical resource majors received lower average grades in none of the course areas studied.
- * No other personal or academic characteristics had a significant impact on grades recorded for physical resource majors.

TABLE 1

Regressand: Grades in All Courses for Physical Resources Majors

Sample Mean = 3.31 S.D. = .78 N = 307

<u>Regressors</u>	<u>Estimators</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.20	.64	.13	.004
74	.27	.64	.16	.10
73	.19	.64	.09	-.08
72	.38	.64	.13	-.06
71	.45	.66	.10	-.01
GPA	1.19	.17	.60	.57
Information Systems	-.04	.43	-.006	-.21
Business Law	1.91	.55	.20	.02
Urban Life	1.24	.34	.77	.11
Real Estate	1.31	.36	.48	.08
Bus. Administration	1.76	.71	.13	-.02
Geography	1.22	.39	.36	.01
Mathematics	1.08	.35	.47	-.03
Ed. Administration	1.44	.72	.11	.05
Political Science	1.18	.55	.12	-.03
Sociology	1.04	.42	.20	.02
Economics	1.17	.15	.50	.003
Management	1.02	.49	.13	-.08
Biology	.99	.71	.07	-.02
MAT - Data Missing	-.24	.28	-.04	.03
Psychology	.49	.71	.04	-.10
Age	-.004	.005	-.05	.05
Minority	.09	.14	.05	-.42
Age - Missing Data	-.05	.13	-.02	.14
Female	-.02	.09	-.01	-.01
Constant	-1.72			

$$R^2 = .41$$

$$\bar{R}^2 = .36$$

Standard Error of Estimate = .63

HEGIS Code: 0115

Number of Majors = 30

HUMAN RESOURCES MAJORS

The adjusted R^2 was .44. Highlights may be summarized as follows:

- * Grade Trends through Time:
There was practically no net change in average grades received by human resources majors between 1971 (.23) and 1975 (.22). Each year the trend fluctuated slightly upward or downward but never by more than .10 of a letter grade.
- * On the average, Human Resources Majors received higher grades in the following course areas: Sociology (.32).
- * Human Resources Majors received lower average grades in the following course areas: Information Systems (-1.36).

TABLE 2

Regressand: Grades in All Courses for Human Resources Majors

Sample Mean: 3.43 S.D. = .72 N = 282

<u>Regressors</u>	<u>Estimators</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.22	.57	.14	.07
74	.33	.56	.20	-.10
73	.25	.56	.14	.08
72	.15	.57	.08	-.04
71	.23	.57	.09	-.08
GPA	1.02	.13	.56	.60
Information Systems	-1.36	.24	-.30	-.41
Sociology	.32	.16	.11	.04
Special Education	-.79	.40	-.09	-.11
History	-.60	.33	-.09	-.06
Geography	.29	.29	.05	-.10
Ed. Administration	.33	.29	.05	.05
Age - Missing Data	.18	.11	.10	-.26
Health Administration	.43	.40	.05	.07
Female	.07	.08	.05	.01
Psychology	.13	.19	.03	.05
Management	-.33	.29	-.05	-.03
Insurance	.15	.27	.03	-.01
Urban Life	-.08	.10	-.05	.01
Counseling & Psy. Services	-.11	.17	-.04	.01
Age	.003	.01	.03	.22
Hours	-.002	.01	-.03	-.31
Curriculum & Instruction	.22	.57	.02	.05
Economics	-.11	.29	-.02	.01
Minority	-.02	.09	-.01	-.24
Educational Foundations	-.04	.30	-.01	-.01
Constant	-.34			

 $R^2 = .49$ $\bar{R}^2 = .44$

Standard Error of Estimate = .54

HEGIS Code: 0199

Number of Majors = 28

BIOLOGY MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:

There was a negative net change in grades averaged by Biology majors between 1971 (-.47) and 1975 (-.65), but the change was slight. During the study period, grades fluctuated somewhat.

- * On the average, Biology Majors received higher grades in the following course areas: Biology (.12).

- * Biology Majors received lower average grades in the following course areas: Chemistry (-.21) and Information Systems (-.32).

TABLE 3

Regressand: Grades in All Courses for Biology Majors

Sample Mean: 3.53 S.D. = .64 N = 539

<u>Regressors</u>	<u>Estimators</u>	<u>Standard Error of Estimators</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .65	.55	-.43	-.02
74	- .58	.55	-.40	.02
73	- .51	.55	-.36	-.004
72	- .57	.55	-.35	-.04
71	- .47	.56	-.20	.06
GPA	1.02	.09	.50	.50
Chemistry	- .21	.08	-.11	-.17
Information Systems	- .32	.13	-.10	-.15
Biology	.12	.06	.09	.13
Vocational & Career Dev.	.72	.56	.05	.03
Special Education	.59	.33	.07	.02
Age	- .01	.004	-.07	.05
Psychology	.41	.33	.05	.02
Educational Foundations	.18	.13	.05	.04
Mathematics	.37	.40	.04	.05
Curriculum & Instruction	.11	.13	.04	.06
Physics	.35	.55	.02	.03
Female	.02	.06	.02	.11
Geography	.41	.55	.03	.03
Sociology	.28	.40	.03	-.002
Hours	- .002	.002	-.03	-.04
Age - Missing Data	- .16	.16	-.04	.05
Minority	.08	.09	.04	-.01
GRE - Verbal	.0004	.0004	.05	.15
GRE - Quantitative	- .0002	.0004	-.03	.17
Veteran	- .06	.11	-.02	.003
GRE - Verbal - Missing Data	.02	.06	.01	.04
Management	.11	.55	.01	-.04
Counseling & Psy. Services	- .02	.21	.01	.04
Constant	.63			

$$R^2 = .31$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .55

HEGIS Code: 0401

Number of Majors = 57

ACCOUNTING MAJORS

The adjusted R^2 was .28. Highlights may be summarized as follows:

- * Grade Trends through Time:

Average grades for Accounting Majors rose to the middle year of the study period and then declined to the same level by the end of the period. From 1971 (-.12) to 1973 (.02), grades increased but the trend reversed and decreased until 1975 (-.11).

- * On the average, Accounting Majors received higher grades in none of the course areas studied.
- * Accounting majors did not average lower in any of the course areas.
- * Hours (-.001) had a slight negative impact. That is, the more hours an Accounting Major average, the lower that grades averaged.

TABLE 4

Regressand: Grades in All Courses for Accounting Majors

Sample Mean: 3.27 S.D. = .79 N = 3010

Regressor	Estimators	Standard Error of Estimator	B	Simple r
Year of Course: 75	-.11	.19	-.07	-.06
74	-.04	.19	-.02	.02
73	.02	.19	.01	.04
72	-.04	.19	-.01	.02
71	-.12	.19	-.03	.001
GPA	.93	.03	.90	.51
Accounting	-.60	.49	-.37	-.15
Information Systems	-.68	.49	-.16	-.05
Quantitative Methods	-.57	.49	-.13	-.02
Mathematics	-1.07	.56	-.06	-.02
Hours	-.001	.0004	-.03	.02
Geography	1.05	.83	.02	.02
Library Science Media	.41	.62	.02	.03
Business Law	-.23	.49	-.04	.04
Age - Missing Data	-.12	.08	-.03	-.02
MAT - Missing Data	.22	.16	.03	.07
Curriculum & Instruction	-.05	.51	-.004	.01
Educational Foundations	-.07	.52	-.01	.03
Counseling & Psy. Services	-.58	.52	-.05	.0001
Special Education	-.66	.53	-.05	.01
Marketing	-.46	.49	-.08	-.003
Actuarial Science	-.68	.57	-.03	-.02
History	-.98	.83	-.02	-.01
Economics	-.43	.49	-.09	.01
Veteran	-.02	.03	-.02	-.03
Political Science	.05	.68	.002	.02
Business Administration	-.36	.49	-.21	.12
Psychology	-.55	.55	-.03	.01
Educational Administration	-.05	.62	-.002	.003
Insurance	-.47	.56	-.03	-.01
MAT - Quant. - Missing Data	-.02	.03	-.01	-.06
Music	-.51	.67	-.02	-.01
Finance	-.33	.49	-.10	.06
Management	-.31	.49	-.07	.05
Real Estate	-.29	.52	-.02	.01
Vocational & Career Dev.	-.26	.68	-.01	.02
GMAT - Quantitative	.001	.003	.01	.11
Female	.01	.04	.01	.12
MAT	-.001	.01	.01	-.06
Minority	.01	.06	.004	-.06
Age	.0004	.003	.003	.03
GMAT - Verbal	.0004	.002	.002	.11
Constant	.64			

 $R^2 = .29$ $\bar{R}^2 = .28$

Standard Error of Estimate = .67

HEGIS Code: 0502

Number of Majors = 253

ACTUARIAL SCIENCE MAJORS

The adjusted R^2 was .35. Highlights may be summarized as follows:

- * Grade Trends through Time:
From 1971 (-.11) to 1973 (-.44), grades declined for Actuarial Science Majors. The following two years, however, average grades increased to 1975 (-.35). The net change in grades for the study period was a decline of one quarter of a letter grade (.24).
- * On the average, Actuarial Science Majors did not receive notably higher or lower grades in any course areas.

TABLE 5

Regressand: Grades in All Courses for Actuarial Science Majors

Sample Mean: 3.29 S.D. = .75 N = 354

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	~ .35	.46	-.23	.08
74	~ .41	.45	-.25	-.03
73	~ .44	.46	-.23	-.07
72	~ .26	.47	-.09	.03
71	~ .11	.50	-.02	-.04
GPA	.98	.08	.58	.59
Actuarial Science	.31	.61	.20	-.27
Physics	1.35	.75	.13	.07
Finance	.86	.65	.17	.12
Marketing	.07	.68	.01	-.01
Hours	~ .002	.002	-.05	.06
Economics	.42	.63	.12	.07
Management	.38	.63	.10	.04
Real Estate	.18	.90	.01	-.02
Political Science	.39	.71	.05	.01
Minority	~ .06	.09	-.03	.01
Age	.01	.01	.03	-.03
Veteran	~ .05	.11	-.02	.14
Information Systems	.62	.64	.15	.05
Business Administration	.57	.62	.27	.11
Mathematics	.59	.65	.13	.07
Accounting	.55	.62	.19	.08
Insurance	.55	.64	.13	.01
Business Law	.52	.87	.04	.05
Quantitative Methods	.47	.87	.03	.05
Constant	~ .09			

$$R^2 = .39$$

$$\bar{R}^2 = .35$$

Standard Error of Estimate = .61

HEGIS Code: 0503

Number of Majors = 28

FINANCE MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for Finance Majors increased slightly to a 1973 high, then reversed in trend. The net change in grades between 1971 (-.32) and 1975 (-.24) was only +.08 of a letter grade.
- * On the average, Finance Majors received higher grades in none of the course areas studied.
- * Finance Majors received lower average grades in the following course areas: Accounting (-.37), Marketing (-.26), Information Systems (-.32), Economics (-.23), and Quantitative Methods (-.16).

TABLE 6

Regressand: Grades in All Courses for Finance Majors

Sample Mean: 3.35 S.D. = .67 N = 3951

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	-.24	.29	-.18	-.04
74	-.17	.29	-.12	-.05
73	-.14	.29	-.07	-.04
72	-.24	.29	-.09	-.04
71	-.32	.29	-.07	-.05
GPA	.95	.03	.49	.50
Accounting	-.37	.08	-.12	-.12
Marketing	-.26	.08	-.07	-.04
Information Systems	-.32	.10	-.06	-.03
Economics	-.23	.08	-.06	-.03
Finance	-.11	.07	-.07	-.01
Quantitative Methods	-.16	.08	-.05	-.03
Business Administration	-.05	.07	-.03	.07
Chemistry	-.47	.27	-.02	.002
Curriculum & Instruction	.37	.51	-.01	-.01
Physical Education	-.33	.51	-.01	-.01
Business Law	.14	.10	.03	.04
GMAT - Verbal - Missing	-.03	.03	-.02	-.004
Mathematics	.35	.34	.01	.03
Health Administration	.27	.26	.01	.003
Psychology	.74	.65	.02	.02
Counseling & Psy. Services	.42	.38	.03	.02
GMAT - Total	.001	.02	.0003	.16
History	-.38	.57	-.01	-.01
Veteran	.01	.02	.01	-.01
Female	.03	.03	.01	.07
Hours	-.0003	.001	-.01	.02
Age - Missing Data	-.01	.04	-.01	-.04
MAT - Missing Data	.10	.14	.02	.01
Actuarial Science	.30	.57	.01	.02
MAT	.01	.01	.01	-.02
Management	.02	.07	.01	.04
Educational Foundations	.19	.51	.01	.01
Age	.001	.002	.01	.01
GMAT - Verbal	-.001	.003	-.01	.11
Minority	-.01	.04	-.002	-.03
Insurance & Risk	-.02	.17	-.002	-.01
Constant	.03			

$$R^2 = .27$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .57

HEGIS Code: 0504

53

Number of Majors = 343

A-13

MANAGEMENT MAJORS

The adjusted R^2 was .29. Highlights may be summarized as follows:

- * Grade Trends through Time:
The average grades for Management Majors dropped between 1971 (-.19) and 1972 (-.30), then fluctuated up and down slightly for the remainder of the study period.
- * On the average, Management Majors received higher grades in the following course areas: Health Administration (.85).
- * Management majors received lower average grades in none of the course areas studied.
- * GMAT - Verbal (.02) and GMAT - Quantitative (.02) had positive impacts while GMAT - Missing data (-.04) had a negative impact. Thus, Management students who did well on the verbal or quantitative sections of the graduate admissions test in business had higher average grades. Those Management Majors with GMAT data missing from their records had lower average grades.

TABLE 7

Regressand: Grades in All Courses for Management Majors

Sample Mean: 3.33 S.D. = .71 N = 4478

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	- .31	.16	-.21	.04
74	- .27	.16	-.18	.002
73	- .28	.16	-.14	-.04
72	- .30	.16	-.11	-.04
71	- .19	.17	-.05	.01
GPA	.97	.03	.47	.48
Management	.65	.37	.39	.17
Accounting	- .01	.37	-.003	-.19
Finance	.21	.37	.07	-.08
Marketing	.26	.37	.07	-.05
Information Systems	.22	.37	.04	-.02
Quantitative Methods	.25	.37	.06	-.07
Health Administration	.85	.40	.08	-.02
Economics	.37	.37	.10	-.03
Business Administration	.46	.37	.32	.02
Hours	- .001	.0004	-.03	.07
GMAT - Missing Data	- .04	.02	-.02	-.05
Insurance	.28	.41	.02	-.04
Psychology	.13	.48	.01	-.003
GMAT - Verbal	.02	.01	.14	.09
GRE - Quant. - Missing	- .16	.16	-.01	-.004
MAT	- .07	.05	-.04	-.02
MAT - Missing Data	.28	.24	.03	-.004
Real Estate	.46	.38	.06	.004
Education	.09	.56	.003	.01
Veteran	.02	.02	.01	-.01
Vocational & Career Dev.	.32	.48	.01	.01
Business Law	.54	.38	.10	.002
Age - Missing Data	.02	.04	.01	.01
Physical Education	.97	.71	.02	.01
Urban Life	.75	.44	.04	.02
Sociology	.86	.71	.02	.01
Political Science	.70	.44	.04	.02
Counseling & Psy. Services	.64	.38	.08	.03
Educational Administration	.62	.39	.07	.02
Minority	.01	.04	.01	-.08
Educational Foundations	.59	.39	.06	.02
Curriculum & Instruction	.59	.41	.04	.02
Business Education	.60	.43	.04	.03
English	.62	.71	.01	.01
Female	.01	.03	.002	.04
Age	.0001	.002	.001	-.05
GMAT - Total	-.002	.002	-.20	.15
GMAT - Quantitative	.02	.01	.12	.14
Constant	3.38			

 $R^2 = .29$ $\bar{R}^2 = .29$

Standard Error of Estimate = .60

HEGIS Code: 0506

Number of Majors = 369

MARKETING MAJORS

The adjusted R^2 was .36. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for Marketing Majors fluctuated up and down with an overall, but insignificant, increase of .08 of a letter grade.
- * On the average, Marketing Majors received higher grades in the following course areas: Management (.17).
- * Marketing Majors received lower average grades in the following course areas: Finance (-.30), Accounting (-.31), and Quantitative Methods (-.29).

TABLE 8

Regressand: Grades in All Courses for Marketing Majors

Sample Mean: 3.29 S.D = .74 N = 1308

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.19	.15	.12	.05
74	.20	.15	.13	.06
73	.15	.15	.07	-.03
72	.17	.16	.06	-.07
71	.07	.16	.02	-.08
GPA	1.01	.05	.57	.58
Finance	- .30	.07	-.10	-.11
Accounting	- .31	.08	-.09	-.07
Quantitative Methods	- .29	.09	-.08	-.09
Management	.17	.07	.06	.07
Information Systems	- .18	.11	-.04	.02
Insurance & Risk	- .20	.19	-.02	-.06
Special Education	.65	.60	.02	.03
Age	- .002	.004	-.01	-.05
Economics	- .06	.10	-.02	.03
Real Estate	- .10	.18	-.01	-.05
Hours	- .001	.001	-.02	-.01
Minority	.05	.10	.02	.05
GMAT - Quant. - Missing	- .02	.10	-.01	-.17
History	.12	.31	.01	-.003
GMAT - Verbal	.0003	.01	.002	.03
Political Science	- .15	.60	-.01	-.01
Age - Missing	- .03	.11	-.01	-.10
Business Administration	.01	.04	.01	.06
GMAT - Quant.	- .002	.01	-.02	.19
Female	- .02	.06	-.01	.03
GMAT - Total	.0002	.001	.02	.15
Veteran	- .01	.04	-.01	-.09
Psychology	.07	.60	.03	.03
Constant	- .15			

$$R^2 = .37$$

$$\bar{R}^2 = .36$$

Standard Error of Estimate = .60

HEGIS Code: 0509

Number of Majors = 99

REAL ESTATE MAJORS

The adjusted R^2 was .33. Highlights may be summarized as follows:

- * Grade Trends through Time:
In the first two years of the study, average grades for Real Estate Majors jumped one quarter of a letter grade (.24), but declined every year since. The net change between 1971 (-.35) and 1975 (-.28) was +.07 of a letter grade.
- * On the average, Real Estate Majors received higher grades in the following course areas: Insurance & Risk (.79).
- * Real Estate Majors received lower average grades in the following course areas: Information Systems (-1.32), Accounting (-.45), and Economics (-.34).
- * GMAT - total (.02) had a positive impact. Real Estate Majors with high scores on the GMAT had high average grades.

TABLE 9

Regressand: Grades in All Courses for Real Estate Majors

Sample Mean: 3.18 S.D. = .76 N = 554

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .28	.45	- .18	-.04
74	- .18	.45	- .11	.001
73	- .16	.45	- .08	.01
72	- .11	.46	- .04	.06
71	- .35	.46	- .10	.01
GPA	.91	.08	.51	.53
Information Systems	-1.32	.37	- .13	-.11
Accounting	- .45	.13	- .12	-.13
Insurance & Risk	.79	.32	.09	.06
Management	.21	.11	.07	.14
Economics	- .34	.16	.08	-.07
Curriculum & Instruction	.92	.65	.05	.05
Real Estate	.11	.06	.06	.06
Minority	- .27	.16	- .08	-.27
Urban Life	1.02	.64	.06	-.01
Hours	- .002	.002	- .06	-.04
Age	.01	.01	.04	-.15
Finance	- .08	.12	- .03	-.02
GMAT - Quant. - Missing	- .07	.07	- .05	.10
Female	.04	.12	.01	.09
GMAT - Verbal	- .11	.07	- .73	.21
Quantitative Methods	- .03	.14	- .01	-.10
Business Law	- .03	.22	- .01	.01
GMAT - Quantitative	- .10	.06	- .81	.23
GMAT - Total	.02	.01	1.38	.25
Veteran	.02	.07	.01	-.04
Constant	-1.12			

$$R^2 = .36$$

$$\bar{R}^2 = .33$$

Standard Error of Estimate = .62

HEGIS Code: 0511

Number of Majors = 46

INSURANCE AND RISK MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
During the study period, from 1971 (-17) to 1975 (.26), average grades for Insurance & Risk Majors increased almost half a letter grade. The estimator for each year is higher than the previous year except for a slight dip in 1974 (.18).
- * On the average, Insurance & Risk Majors received higher grades in none of the course areas studied.
- * Insurance and Risk Majors received lower average grades in the following course areas: Accounting (-.60), Actuarial Science (-.68), Quantitative Methods (-.54), Finance (-.36), and Marketing (-.44).
- * Hours (.002) had a positive impact. Insurance & Risk Majors with more average hours of course work had higher average grades.

TABLE 10

Regressand: Grades in All Courses for Insurance & Risk Majors

Sample Mean: 3.41 S.D. = .68 N = 658

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.26	.27	.19	.08
74	.18	.27	.12	-.04
73	.24	.28	.13	.001
72	.14	.29	.04	-.02
71	-.17	.31	-.04	-.10
GPA	.90	.09	.40	.45
Insurance	.02	.14	.01	.20
Accounting	-.60	.17	-.19	-.20
Actuarial Science	-.68	.18	-.17	-.15
Quantitative Methods	-.54	.20	-.12	-.11
Finance	-.36	.16	-.13	-.08
Marketing	-.44	.22	.09	-.10
Business Law	.13	.18	.03	.05
Hours	.002	.001	.07	.10
Information Systems	-.31	.19	-.08	.02
Business Administration	-.14	.14	-.09	.02
Educational Foundations	.70	.60	.04	.03
Sociology	.71	.60	.04	.03
Age - Missing Data	-.01	.09	-.003	-.02
Mathematics	-.34	.44	-.03	-.03
Political Science	.14	.23	.03	.001
Curriculum & Instruction	-.36	.61	-.02	-.02
Minority	-.07	.09	-.03	.03
GMAT - Total	-.002	.004	-.18	.05
Real Estate	-.21	.33	-.02	-.02
Educational Administration	-.30	.60	-.02	-.02
Management	-.06	.16	-.02	.01
Age	.004	.01	.04	.11
Veteran	-.05	.07	-.04	-.09
History	.17	.44	.01	.01
GMAT - Missing	.03	.08	.01	-.08
GMAT - Verbal	.01	.03	.12	.02
GMAT - Quantitative	.01	.03	.07	.07
Female	.01	.09	.004	-.05
Constant	.36			

$$R^2 = .31$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .58

HEGIS Code: 0512

Number of Majors = 48

INTERNATIONAL BUSINESS MAJORS

The adjusted R^2 was .33. Highlights may be summarized as follows:

- * Grade Trends through Time:
As with Insurance & Risk Majors, average grades for International Business Majors increased every year of the study period with a slight dip in 1974. The net change was smaller than that for Insurance & Risk Majors, however, with .29 increase in five years.
- * On the average, International Business Majors received higher grades in the following course areas: Political Science (1.95).
- * International Business Majors received lower average grades in none of the course areas studied.

TABLE 11

Regressand: Grades in All Courses for International Business Majors

Sample Mean: 3.24 S.D. = .75 N = 662

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.21	.37	.14	.15
74	.16	.37	.10	-.02
73	.19	.37	.09	-.05
72	.16	.37	.06	-.11
71	-.08	.39	-.02	-.05
GPA	.97	.07	.54	.55
Accounting	-.41	.63	-.12	-.05
Political Science	1.95	.88	.10	.04
Information Systems	-.20	.64	-.05	-.03
Quantitative Methods	-.18	.64	-.04	-.08
GMAT - Total	.0004	.0004	.04	.24
Management	.17	.63	.07	.06
Business Law	-.54	.88	-.03	-.01
Marketing	-.001	.63	-.0002	-.0001
GMAT - Total - Missing	.06	.06	.03	-.12
Insurance	.59	.89	.03	.04
Minority	.04	.08	.02	-.04
Age - Missing Data	-.05	.10	-.02	.01
Business Administration	.09	.62	.06	.05
Female	-.01	.10	-.01	-.004
Economics	.12	.63	.03	.01
Finance	.11	.63	.04	.04
Hours	.0002	.001	.004	-.19
Constant	-.38			

$$R^2 = .35$$

$$\bar{R}^2 = .33$$

Standard Error of Estimate = .62

HEGIS Code: 0513

Number of Majors = 50

LIBRARY SCIENCE MEDIA MAJORS

The adjusted R^2 was .33. Highlights may be summarized as follows:

- * Grade Trends through Time:
During the study period, grades rose slightly by .04 of a letter grade. In 1975, the final year examined, average grades dropped by .01 of a letter grade.
- * On the average, Library Science Media Majors received higher grades in the following course areas: Library Science Media (.32) and Sociology (.47).
- * Library Science Media Majors received lower average grades in none of the course disciplines studied.

TABLE 12

Regressand: Grades in All Courses for Library Science Media Majors

Sample Mean = 3.73 S.D. = .47 N = 982

<u>Regressors</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.09	.40	.10	.03
74	.10	.40	.10	.02
73	.09	.40	.06	.01
72	.05	.41	.02	-.09
71	.05	.41	.13	-.05
GPA	.97	.06	.53	.55
Library Science Media	.32	.10	.33	.21
Sociology	.47	.22	.06	.04
Curriculum & Instruction	.17	.11	.14	-.07
Information Systems	.76	.40	.05	.02
Educational Administration	.35	.18	.06	.02
Counseling & Psy. Services	.26	.15	.06	-.04
Accounting	-.41	.41	-.03	-.05
Hours	.001	.001	.02	.05
English	-.02	.15	-.004	-.10
Special Education	-.05	.18	-.01	-.08
Veteran	-.03	.08	-.02	-.09
Early Childhood Education	.18	.17	.03	-.07
Physical Education	.26	.29	.02	.03
Age	.001	.001	.01	.07
MAT - Missing Data	.01	.03	.02	-.02
Biology	.29	.41	.02	.02
Geography	.27	.41	.02	.02
Educational Foundations	.10	.11	.06	-.12
History	.27	.41	.01	.02
Chemistry	.25	.40	.02	.02
Art	.15	.40	.01	-.05
MAT	.0003	.001	.01	.22
Female	.01	.06	.01	.10
Minor	.004	.04	.003	-.21
Constant	-.32			

$$R^2 = .35$$

$$\bar{R}^2 = .33$$

Standard Error of Estimate = .39

HEGIS Code: - 0699

Number of Majors = 111

DECISION SCIENCE MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for Decision Science Majors increased in the first year of the study, fell more sharply to 1973, but recovered and stabilized by 1975.
- * On the average, Decision Science Majors received higher grades in none of the course areas studied.
- * Decision Science Majors received lower average grades in the following course areas: Accounting (-.33), Information Systems (-.25), and Actuarial Science (-.67).

TABLE 13

Regressand: Grades in All Courses for Decision Science Majors

Sample Mean = 3.57 S.D. = .60 N = 599

<u>Regressors</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.33	.31	.25	-.02
74	.33	.31	.25	.04
73	.29	.31	.19	-.03
72	.43	.31	.27	.05
71	.36	.32	.16	-.06
GPA	1.08	.09	.52	.50
Accounting	- .33	.11	-.12	-.08
Information Systems	- .25	.10	-.10	-.12
Actuarial Science	- .67	.30	-.08	-.11
Sociology	.90	.52	.06	.03
Business Law	.28	.20	.05	.05
Marketing	- .19	.11	-.07	-.04
Economics	- .20	.13	-.06	-.04
GMAT - Total	.0001	.001	-.01	.08
Mathematics	- .34	.27	-.05	-.01
Educational Foundations	.36	.37	.03	.04
Hours	- .001	.001	-.04	.12
Quantitative Methods	- .05	.05	-.04	.05
Female	- .04	.07	-.03	.01
Age - Missing Data	- .10	.17	-.02	-.11
Special Education	.24	.52	.02	.03
Finance	- .04	.10	-.02	.02
Age	- .001	.004	-.01	.02
Veteran	- .01	.05	-.01	-.04
GMAT - Verbal	- .002	.01	-.02	.06
GMAT - Quantitative - Missing	.01	.06	.01	-.15
Constant	- .36			

$$R^2 = .30$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .51

HEGIS Code: 0701

Number of Majors = 39

INFORMATION SYSTEMS MAJORS

The adjusted R^2 was .35. Highlights may be summarized as follows:

- * Grade Trends through Time:
Fluctuated up and down from year to year, average grades earned by Information Systems Majors finally stabilized in 1974. The net change was a decrease of only .05 of a letter grade.
- * On the average, Information Systems Majors received higher grades in none of the course areas studied.
- * Information Systems Majors received lower average grades in the following course areas: Accounting (-.48).

TABLE 14

Regressand: Grades in All Courses for Information Systems Majors

Sample Mean = 3.42 S.D. = .73 N = 953

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	-.08	.59	-.05	.0003
74	-.08	.59	-.05	-.01
73	-.004	.60	-.002	.01
72	.07	.60	.03	.04
71	-.03	.60	-.01	-.05
GPA	.96	.05	.58	.58
Accounting	-.48	.24	-.18	-.13
Finance	-.47	.25	-.13	-.10
Quantitative Methods	-.44	.24	-.13	-.10
Business Education	.78	.65	.03	.03
Physics	.44	.48	.03	.04
Insurance & Risk	.42	.63	.02	.03
Business Law	-.34	.32	-.04	-.02
Business Administration	-.18	.24	-.08	-.02
Minority	-.06	.07	-.03	-.04
Urban Life	.02	.33	.002	.06
Economics	-.18	.24	-.05	.04
Age - Missing Data	.03	.09	.01	-.04
Curriculum & Instruction	-.16	.37	-.01	.03
Health Administration	-.26	.41	-.02	.02
Age	-.002	.01	-.01	-.05
MAT	-.02	.04	-.10	.02
Information Systems	-.14	.23	-.10	.09
Management	-.13	.24	-.06	.02
MAT - Missing Data	-.38	.91	-.10	-.003
Female	-.03	.06	-.01	.13
Marketing	-.09	.27	-.02	.03
GMAT - Quantitative	-.001	.004	-.01	.14
Educational Foundations	-.06	.35	-.01	.06
Hours	-.0001	.001	-.01	.06
Veteran	-.01	.04	-.004	-.10
Constant	1.64			

$$R^2 = .37$$

$$\bar{R}^2 = .35$$

Standard Error of Estimate = .59

HEGIS Code: 0701

Number of Majors = 73

MUSIC EDUCATION MAJORS

The adjusted R^2 was .22. Highlights may be summarized as follows:

- * Grade Trends through Time:
Grades increased yearly from 1971 to 1973 by over half a letter grade, then declined by 1974. Data were unavailable for 1975. The total increase was .30 of a letter grade.
- * On the average, Music Education Majors received higher grades in none of the course areas studied.
- * Music Education Majors received lower average grades in the following course areas: English (-1.29). Thus, Music Education Majors received an average of one and a quarter letter grades lower in English than they did in other courses.

TABLE 15

Regressand: Grades in All Courses for Music Education Majors

Sample Mean = 3.55 S.D. = .69 N = 935

<u>Regressor</u>	<u>Estimate</u>	<u>Standard Error of Estimate</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75				
74	- .06	.05	-.04	-.07
73	.17	.06	.09	.11
72	- .03	.08	-.01	.02
71	- .36	.12	-.09	-.07
GPA	.92	.08	.44	.45
English	-1.29	.44	-.09	-.10
Educational Foundations	- .16	.12	-.06	-.06
Early Childhood Education	- .23	.18	-.04	-.05
Hours	- .003	.002	-.07	.04
Minority	- .07	.05	-.05	-.17
Counseling & Psy. Services	.27	.17	.05	.06
Special Education	- .26	.21	-.04	-.02
Urban Life	- .76	.62	-.04	-.07
Economics	- .54	.62	-.03	-.03
Management	- .54	.62	-.03	-.03
Quantitative Methods	- .54	.62	-.03	-.03
Psychology	.33	.44	.02	.03
Physical Education	.50	.62	.02	.02
Veteran	- .01	.07	-.01	-.21
Educational Administration	.22	.29	.02	.01
Age	- .002	.003	-.02	-.002
MAT - Missing Data	.05	.07	.03	-.04
MAT	- .002	.003	-.03	.04
Curriculum & Instruction	.10	.17	.02	.04
Library Science Media	.12	.26	.01	.03
Music	.03	.09	.02	.03
Business Education	.19	.44	.01	.03
GRE - Verbal	- .0004	.001	-.05	.12
GRE - Quantitative	.0004	.001	.04	.08
Female	.02	.06	.02	.15
HPRS	- .07	.29	-.01	.01
Vocational & Career Dev.	.10	.62	.01	.02
Constant	.63			

$$R^2 = .25$$

$$\bar{R}^2 = .22$$

Standard Error of Estimate = .61

HEGIS Code: 0801

Number of Majors = 73

A-31

71

ELEMENTARY EDUCATION MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
Grades increased by .10 of a letter grade between 1971 and 1972, but stabilized throughout the remainder of the study period. The net change was an increase of .11.
- * On the average, Elementary Education Majors received higher grades in the following course areas: Music (.22).
- * Elementary Education Majors received lower average grades in the following course areas: English (-.55), History (-.49), Urban Life (-1.04), and Psychology (-.22).

TABLE 16

Regressand: Grades in All Courses for Elementary Education Majors

Sample Mean: 3.63 S.D. = .57 N = 9347

Regressor	Estimator	Standard Error of Estimator	B	Simple r
Year of Course: 75	-.44	.22	-.38	.03
74	-.46	.22	-.37	.001
73	-.47	.22	-.30	-.004
72	-.45	.22	-.21	-.004
71	-.55	.22	-.20	-.05
GPA	.97	.02	.49	.50
Curriculum & Instruction	.05	.07	.04	.12
Educational Foundations	-.10	.07	-.07	-.10
English	-.55	.12	-.05	-.08
Special Education	-.11	.07	-.04	-.05
History	-.49	.13	-.04	-.04
Music	.22	.09	.03	.03
Urban Life	-1.04	.29	-.03	-.04
Counseling & Psy. Services	.09	.07	.03	.01
Educational Administration	.05	.07	.02	.03
Library Science Media	.05	.08	.01	.03
Management	.43	.23	.02	.01
Psychology	-.22	.11	-.02	-.02
Hours	.0004	.0003	.01	.02
Music Education	-.48	.25	-.04	-.01
Biology	-.51	.29	-.02	-.02
Vocational & Career Dev.	.11	.11	.01	.03
Information Systems	.64	.50	.01	.01
Business Education	.13	.14	.01	-.002
Economics	-.18	.13	-.01	-.02
Accounting	.51	.50	.01	.01
MAT	.001	.001	.01	.05
Physical Education	-.11	.10	-.01	-.02
Sociology	-.13	.13	-.01	-.02
Political Science	-.16	.19	-.01	-.01
Early Childhood Education	-.05	.07	-.02	-.03
Age - Missing Data	-.01	.02	-.004	-.06
Physics	-.07	.15	-.01	-.01
Art	-.04	.09	-.01	-.04
HPRS	-.03	.08	-.01	-.03
Female	.01	.02	.004	.08
Age	.0002	.001	.003	-.04
Minority	.004	.01	.003	-.23
Veteran	.01	.03	.002	-.04
Mathematics	-.02	.08	-.004	.02
Geography	-.02	.10	-.002	-.01
MAT - Missing Data	.002	.01	.002	-.07
Constant	.50			

$$R^2 = .27$$

$$R^2 = .27$$

Standard Error of Estimate = .49

HEGIS Code: 0802

Number of Majors = 940

SECONDARY EDUCATION MAJORS

The adjusted R^2 was .33. Highlights may be summarized as follows:

- * Grade Trends through Time:
With a change of no more than .02 of a letter grade from year to year, and a net change of only .03, grades for Secondary Education Majors remained stable throughout the study period.
- * On the average, Secondary Education Majors received higher grades in the following course areas: Curriculum & Instruction (.29), Educational Foundations (.19), Geography (.28), Special Education (.24), Counseling and Psychological Services (.22), Music (.32), Educational Administration (.16), Quantitative Methods (.67), HPRS (.31), and Library Science Media (.20).
- * Secondary Education Majors received lower average grades in the following course areas: English (-.17), History (-.19), Chemistry (-.23), Biology (-.13), Accounting (-.77), and Urban Life (-.53).
- * Hours (.001) had a slight positive impact. Secondary Education students with more average hours had higher average grades.

TABLE 17

Regressand: Grades in All Courses for Secondary Education Majors

Sample Mean: 3.54 S.D. = .61 N = 5559

Regressor	Estimator	Standard Error of Estimator	<u>B</u>	Simple <u>r</u>
Year of Course: 75	-.15	.17	-.12	.01
74	-.14	.17	-.10	.04
73	-.16	.17	-.10	-.03
72	-.16	.17	-.07	-.02
71	-.18	.17	-.06	-.02
GPA	.95	.02	.47	.50
Curriculum & Instruction	.29	.04	.21	.21
Educational Foundations	.19	.04	.13	.08
English	-.17	.04	-.08	-.16
History	-.19	.05	-.07	-.18
Mathematics	-.06	.04	-.03	-.11
Chemistry	-.23	.08	-.04	-.05
Biology	-.13	.06	-.03	-.04
Accounting	-.77	.29	-.03	-.03
Urban Life	-.53	.23	-.03	-.04
Geography	.28	.07	.05	.04
Special Education	.24	.06	.06	.05
Counseling & Psy. Services	.22	.05	.06	.02
Music	.32	.09	.05	.02
Educational Administration	.16	.05	.05	.01
Hours	.001	.0003	.03	.001
Quantitative Methods	.67	.29	.03	.02
HPRS	.31	.13	.03	.02
Female	.03	.02	.02	.05
Library Science Media	.20	.09	.03	.05
Vocational & Career Dev.	.41	.21	.02	.01
Business Law	-.46	.35	-.01	-.02
Management	.28	.19	.02	.01
MAT - Missing	.02	.02	.01	-.03
Economics	-.09	.12	-.01	-.03
Business Administration	-.13	.15	-.01	-.02
Minority	-.02	.02	-.01	-.17
MAT	-.001	.001	-.01	.11
Physics	.11	.08	.02	.01
Political Science	.09	.08	.01	.003
Sociology	.08	.07	.02	-.03
Physical Education	.16	.16	.01	-.01
Psychology	.10	.10	.01	.003
Business Education	.27	.29	.01	.01
Art	.12	.19	.01	.002
Finance	-.27	.50	-.01	-.01
Age	.0003	.001	.004	.01
Music Education	-.10	.22	-.01	-.01
Real Estate	-.20	.50	-.004	-.01
Early Childhood Education	-.05	.13	-.004	-.03
Information Systems	.04	.15	.003	-.02
Veteran	.01	.02	.003	-.02
Age - Missing Data	-.01	.03	-.002	-.004
Constant	.18			

$$R^2 = .34$$

$$\bar{R}^2 = .33$$

Standard Error of Estimate = .50

HEGIS Code: 0803

Number of Majors = 558

75

SPECIAL EDUCATION MAJORS

The adjusted R^2 was .32. Highlights may be summarized as follows:

- * Grade Trends through Time:
The average grades for Special Education Majors dropped between 1971 (-.47) and 1972 (-.54), but during the remainder of the study period, slowly and steadily recovered. The eventual change was an increase of only .02 of a letter grade.
- * On the average, Special Education Majors received higher grades in none of the course areas studied.
- * Special Education Majors received lower average grades in the following course areas: Political Science (-.87), Psychology (-.34), Urban Life (-.58), Information Systems (-.63), Music Education (-.66), Economics (-1.20), and Physical Education (-.36).

TABLE 18

Regressand: Grades in All Courses for Special Education Majors

Sample Mean: 3.66 S.D. = .54 N = 5856

Regressor	Estimator	Standard Error of Estimator	B	Simple r
Year of Course: 75	-.45	.20	-.41	.03
74	-.48	.20	-.41	.04
73	-.51	.20	-.34	-.04
72	-.54	.20	-.27	-.06
71	-.47	.20	-.16	-.01
GPA	.96	.02	.54	.56
Special Education	-.11	.12	-.10	.08
Educational Administration	-.04	.13	-.01	.05
Political Science	-.87	.29	-.04	-.03
Psychology	-.34	.13	-.08	-.03
Hours	.001	.002	.03	.10
Urban Life	-.58	.20	-.04	-.05
Information Systems	-.63	.24	-.03	-.03
Music Education	-.66	.24	-.09	-.02
Economics	-1.20	.46	-.03	-.04
Business Education	.49	.34	.02	.01
Physical Education	-.36	.16	-.04	-.06
Early Childhood Education	-.14	.13	-.05	-.002
EPES	.03	.19	.002	-.01
Music	.08	.23	.005	.01
Biology	-.47	.26	-.02	-.02
Geography	.12	.34	.004	-.01
English	.26	.46	.01	.01
Counseling & Pay. Services	-.24	.13	-.06	-.03
MAT - Missing	.01	.01	.01	-.01
Vocational & Career Dev.	.02	.34	.001	.01
Mathematics	.02	.34	.001	.01
Age	-.001	.001	-.004	-.01
Female	-.01	.02	-.01	.09
History	-.26	.17	-.02	-.06
Curriculum & Instruction	-.20	.13	-.12	-.06
Educational Foundations	-.19	.13	-.12	-.02
Sociology	-.23	.15	-.03	-.01
Management	-.19	.17	-.02	.01
Physics	-.30	.34	-.01	-.01
Minority	-.01	.02	-.01	-.18
Art	-.23	.46	-.01	-.02
Quantitative Methods	-.10	.26	-.004	.02
Business Administration	-.15	.46	-.004	.01
Veteran	-.004	.03	-.002	-.04
Library Science Media	-.05	.34	-.002	.01
Constant	.76			

 $R^2 = .32$ $\bar{R}^2 = .32$

Standard Error of Estimate = .44

HEGIS Code: 0808

Number of Majors = 549

EDUCATIONAL FOUNDATIONS MAJORS

The adjusted R^2 was .41. Highlights may be summarized as follows:

- * Grade Trends through Time:
Data for 1974 were unavailable and estimators for the other years showed a fluctuating trend. There was a slight increase in average grades between 1971 (-.18) and 1975 (-.01).
- * On the average, Educational Foundations Majors received higher grades in none of the course areas studied.
- * Educational Foundations Majors received lower average grades in the following course areas: Insurance & Risk (-2.24).
- * Age (.01) had a positive impact. Thus, on the average, older Educational Foundations students received higher grades.

TABLE 19

Regressand: Grades in All Courses for Educational Foundations Majors

Sample Mean: 3.72 S.D. = .60 N = 532

Regressor	Estimator	Standard Error of Estimator	β	Simple r
Year of Course: 75	- .01	.05	-.01	.02
74				
73	- .04	.07	-.02	-.01
72	- .21	.11	-.08	-.10
71	- .18	.20	-.03	.02
GPA	1.04	.09	.55	.61
Insurance & Risk	-2.29	.66	-.16	-.27
Educational Foundations	.01	.47	.01	.27
Curriculum & Instruction	.17	.48	.06	.03
Urban Life	- .86	.58	-.09	-.07
Management	- .57	.55	-.07	-.05
Hours	.001	.001	.06	.14
Age	.01	.004	.06	-.04
MAT	.002	.004	.02	-.0002
Library Science Media	.05	.55	.01	-.01
Economics	.003	.50	.001	-.19
Veteran	- .04	.06	-.03	-.09
History	- .36	.51	-.06	-.07
English	- .37	.52	-.06	-.05
Art	- .55	.67	-.04	-.05
Business Administration	- .30	.51	-.06	-.06
Mathematics	- .10	.53	-.01	.01
Information Systems	- .02	.66	-.002	.02
Age - Missing	.03	.09	.02	.08
MAT - Missing	- .03	.08	-.01	.02
Female	- .01	.06	-.01	.05
Psychology	- .20	.49	-.07	-.15
Educational Administration	- .20	.49	-.06	-.03
Counseling & Psy. Services	- .18	.48	-.08	-.08
Special Education	- .17	.49	-.04	-.05
Vocational & Career Dev.	- .09	.67	-.01	.02
Minority	- .01	.07	-.01	-.22
Constant	- .44			

$$R^2 = .45$$

$$\bar{R}^2 = .41$$

Standard Error of Estimate = .46

HEGIS Code: 0821

Number of Majors = 47

73

EARLY CHILDHOOD EDUCATION MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
Although the trend sometimes spurted and sometimes remained stable, there was an increase in average grades for Early Childhood Education Majors by one third of a letter grade between 1971 (-.43) and 1975 (-.13).
- * On the average, Early Childhood Education Majors received higher grades in the following course areas: Sociology (1.20).
- * Early Childhood Education Majors received lower average grades in none of the course areas studied.
- * MAT (.003) and Age (.002) had positive impacts. Thus, those Early Childhood Majors with high scores on the MAT or who were older received higher average grades.

TABLE 20

Regressand: Grades in All Courses for Early Childhood Education Majors

Sample Mean: 3.61 S.D. = .59 N = 2371

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .13	.30	-.11	.05
74	- .13	.30	-.10	.02
73	- .23	.30	-.14	-.07
72	- .20	.30	-.08	-.02
71	- .43	.31	-.10	-.05
GPA	.96	.04	.50	.51
Educational Foundations	.06	.23	.04	-.09
Special Education	.02	.23	.01	-.05
Music	.46	.25	.09	.04
Sociology	1.20	.56	.04	.01
Curriculum & Instruction	.28	.23	.12	.05
Art	- .08	.30	-.01	-.03
Physical Education	- .20	.37	-.01	-.04
Library Science Media	.47	.30	.04	.02
Hours	.001	.001	.03	.02
HPRS	.05	.26	.01	.01
Counseling & Psy. Services	.39	.29	.04	.01
Mathematics	.68	.55	.02	.01
Veteran	- .08	.08	-.02	-.01
Minority	- .02	.03	-.01	-.29
History	.09	.29	.01	-.01
Economics	- .07	.55	-.002	-.02
Female	- .04	.07	-.01	-.02
MAT	.003	.001	.01	.12
Age	.002	.001	.003	-.03
Early Childhood Education	.21	.23	.16	.04
Educational Administration	.21	.24	.04	.05
English	.23	.26	.03	-.03
MAT - Missing	.004	.02	.003	-.03
Constant	.07			

$$R^2 = .28$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .50

HEGIS Code: 0823

Number of Majors = 69

A-41

EDUCATIONAL ADMINISTRATION MAJORS

The adjusted R^2 was .26. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades rose from 1971 (.27) to 1975 (.43) by .16 of a letter grade. Each year the average grades were slightly higher than the previous year except for 1975 when there was a dip in grades.
- * On the average Educational Administration Majors received higher grades in the following course areas: Music Education (.72), Art (.84), Library Science Media (.54), and Physical Education (.54).
- * Educational Administration Majors received lower average grades in none of the course areas studied.

TABLE 21

Regressand: Grades in All Courses for Educational Administration Majors

Sample Mean: 3.56 S.D. = .59 N = 3271

Regressor	Estimator	Standard Error of Estimator	B	Simple r
Year of Course: 75	.43	.23	.35	.01
74	.44	.23	.34	.06
73	.34	.23	.24	-.02
72	.33	.23	.16	-.05
71	.27	.23	.11	-.03
GPA	.96	.03	.48	.49
Information Systems	-.43	.25	-.04	-.06
Finance	-1.30	.54	-.04	-.05
Chemistry	-.40	.30	-.03	-.05
History	-.13	.24	.01	-.07
Hours	.001	.003	.05	.08
Political Science	-.10	.25	-.01	-.03
Music Education	.72	.34	.07	.02
Urban Life	.11	.23	.01	-.05
Sociology	.09	.24	.01	-.02
Art	.84	.41	.04	.02
Library Science Media	.54	.24	.05	.03
Business Education	1.00	.54	.03	.01
Quantitative Methods	.05	.26	.01	-.03
Physical Education	.54	.26	.05	-.02
MAT - Missing	.02	.02	.02	.02
Music	.91	.54	.03	.01
Business Law	-.19	.54	-.01	-.02
Educational Administration	.30	.19	.26	-.004
Early Childhood Education	.21	.23	.03	.01
English	.17	.26	.01	-.03
Counseling & Psy. Services	.28	.20	.07	-.02
Vocational & Career Dev.	.41	.22	.06	.05
Veteran	-.02	.02	-.01	.03
Business Administration	.23	.24	.03	-.01
Management	.28	.20	.06	.01
Marketing	.10	.42	.004	-.002
Psychology	.20	.32	.01	-.003
Geography	.51	.40	.02	.02
Biology	.21	.32	.01	-.02
HPES	.16	.41	.01	-.04
MAT	.0004	.001	.01	.12
Physics	.15	.54	.004	-.02
GMAT - Quantitative	.02	.04	.01	-.01
Age - Missing	-.01	.03	-.004	-.002
Special Education	.34	.20	.09	-.02
Age	.0002	.001	.003	.03
Curriculum & Instruction	.33	.19	.19	.01
Educational Foundations	.33	.19	.22	.03
Mathematics	.33	.22	.05	-.02
Economics	.33	.28	.02	-.004
Accounting	.35	.42	.01	-.002
Minority	-.01	.02	-.004	-.10
Constant	-1.12			

 $R^2 = .27$ $\bar{R}^2 = .26$

Standard Error of Estimate = .50

HEGIS Code: 0827

Number of Majors = 293

EDUCATIONAL LEADERSHIP MAJORS

The adjusted R^2 was .20. Highlights may be summarized as follows:

- * Grade Trends through Time:
Fluctuating from year to year by no more than .05 of a letter grade, average grades for educational leadership majors declined only .01 in five years.
- * On the average, Educational Leadership Majors received higher grades in the following course areas: Curriculum & Instruction (.12), Business Education (.14), Vocational & Career Development (.14), and Library Science Media (.13).
- * Educational Leadership Majors received lower average grades in the following course areas: Information Systems (-.38), History (-.28), English (-.23), Quantitative Methods (-.60), Finance (-.52), Accounting (-.41), and Chemistry (-.23).
- * GRE-Verbal (-.002) had a negative impact. Educational leadership students with higher average scores on the verbal section of the GRE, had lower average grades in their course work.

TABLE 22

Regressand: Grades in All Courses for Educational Leadership Majors

Sample Mean: 3.73 S.D. = .50 N = 6018

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	.14	.10	.12	.001
74	.19	.10	.17	.06
73	.16	.10	.13	-.01
72	.18	.10	.12	-.02
71	.15	.10	.09	-.04
GPA	.93	.03	.40	.41
Curriculum & Instruction	.12	.04	.09	.10
Information Systems	-.38	.08	-.06	-.07
History	-.28	.08	-.05	-.08
English	-.23	.07	-.05	-.06
Quantitative Methods	-.60	.15	-.05	-.05
Business Education	.14	.05	.05	.02
Educational Administration	.05	.04	.04	.04
Vocational & Career Dev.	.14	.06	.04	.03
Management	.09	.05	.04	.02
Library Science Media	.13	.06	.03	.03
Educational Foundations	-.004	.04	-.003	-.02
Special Education	.07	.06	.02	-.001
Early Childhood Education	.04	.06	.01	.01
Counseling & Psy. Services	.004	.05	.002	-.01
Music	.14	.10	.02	.02
Art	.15	.10	.02	.02
Finance	-.52	.20	-.03	-.04
Accounting	-.41	.17	-.03	-.03
Chemistry	-.23	.10	-.03	-.03
Age	-.001	.001	-.02	-.09
GRE - Verbal	-.002	.001	-.02	-.02
Minority	-.02	.02	-.02	-.12
Marketing	-.21	.13	-.02	-.02
Music Education	.04	.13	.01	-.03
Hours	.0002	.0002	.01	-.03
Veteran	-.01	.02	-.01	-.07
Business Administration	-.03	.07	-.01	-.04
Real Estate	.05	.15	.004	-.01
MAT - Missing	.01	.01	.01	.04
Urban Life	-.13	.07	-.03	-.04
Economics	-.16	.10	-.02	-.02
Political Science	-.13	.07	-.03	-.03
Mathematics	-.11	.06	-.03	-.03
Psychology	-.09	.05	-.03	-.04
Physics	-.14	.09	-.02	-.04
Sociology	-.09	.06	-.02	-.04
Business Law	-.19	.19	-.01	.01
Health Administration	-.16	.19	-.01	-.004
Biology	-.10	.12	-.01	-.02
Geography	-.04	.09	-.01	.003
HPRS	.11	.26	.01	.01
Age - Missing	-.01	.04	-.004	.003
Physical Education	.05	.45	.001	.007
Constant	1.17			

 $R^2 = .21$ $R^2 = .20$

Standard Error of Estimate = .45

REGIS Code: 0827

Number of Majors = 361

READING SPECIALIST MAJORS

The adjusted R^2 was .30. Highlights may be summarized as follows:

- * Grade Trends through Time:
Except for a slight dip in grades in 1972, average grades for Reading Specialist Majors remained stable throughout the study period.
- * On the average, Reading Specialist Majors received higher grades in the following course areas: Counseling and Psychological Services (.42).
- * Reading Specialist Majors received lower average grades in the following course areas: Mathematics (-2.29).
- * Hours (.002) had a positive impact. The more hours a reading specialist had attempted, the higher his average grade.

TABLE 23

Regressand: Grades in All Courses for Reading Specialist Majors

Sample Mean: 3.64 S.D. = .54 N = 1124

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .11	.25	-.10	.05
74	- .12	.25	-.11	-.003
73	- .16	.26	-.10	-.03
72	- .24	.26	-.12	-.04
71	- .15	.25	-.06	-.01
GPA	.95	.05	.52	.52
Mathematics	-2.29	.48	-.13	-.15
English	- .17	.19	-.03	-.13
Special Education	.10	.15	.05	-.06
Hours	.002	.001	.08	.01
Counseling & Psy. Services	.42	.17	.12	.03
Educational Foundations	.17	.15	.12	-.01
Psychology	- .06	.35	-.01	-.01
Library Science Media	.39	.23	.06	.05
Geography	.54	.48	.03	.02
Age - Missing	- .04	.07	-.02	-.09
Age	- .001	.002	-.01	.02
Educational Administration	.30	.18	.07	.03
Curriculum & Instruction	.24	.15	.21	.06
Early Childhood Education	.27	.18	.07	.02
Female	- .03	.07	-.01	.01
Mar	- .001	.002	-.001	.03
Minority	- .01	.04	-.01	-.22
Constant	.11			

$$R^2 = .31$$

$$\bar{R}^2 = .30$$

Standard Error of Estimate = .45

HEGIS Code: 0830

Number of Majors = 114

ART EDUCATION MAJORS

The adjusted R^2 was .16. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for Art Education Majors declined between 1971 (.04) and 1972 (-.01) but eventually increased by .15 of a letter grade in 1975 (.19). No data were available for 1973.
- * There were no course disciplines in which Art Education Majors received especially high or low grades.

TABLE 24

Regressand: Grades in All Courses for Art Education Majors

Sample Mean: 3.55 S.D. = .55 N = 239

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.19	.11	.17	.04
74	.06	.11	.05	-.03
73				
72	-.01	.15	-.01	-.04
71	.04	.18	.02	-.003
GPA	.92	.16	.41	.44
Curriculum & Instruction	.72	.44	.21	.13
Veteran	-.28	.26	-.07	-.09
Counseling & Psy. Services	-.21	.64	-.02	-.07
Physical Education	-.21	.63	-.03	-.07
Music	.60	.46	.14	.05
HPRS	.28	.41	.10	-.02
Special Education	.61	.64	.07	.05
MAT - Missing	.21	.15	.01	.06
GRE - Verbal	.0002	.001	.02	.02
Art	.37	.37	.23	-.05
Educational Foundations	.38	.43	.11	.03
Educational Administration	.47	.64	.06	.05
Minority	-.05	.20	-.02	-.16
Hours	.001	.002	.02	.11
GRE - Quantitative	.0003	.001	.04	-.02
GRE - Quantitative - Missing	-.04	.12	-.04	-.04
Female	-.04	.14	-.02	-.10
Age	-.001	.004	-.01	.10
Constant	-.40			

$$R^2 = .23$$

$$\bar{R}^2 = .16$$

Standard Error of Estimate = .50

HEGIS Code: 0831

Number of Majors = 26

BUSINESS EDUCATION MAJORS

The adjusted R^2 was .26. Highlights may be summarized as follows:

- * Grade Trends through Time:
From 1971 (-1.07) to 1973 (-.96), grades increased for Business Education Majors but then declined in one year as much as they had gained in two. Average grades then leveled off, somewhat, in 1975 (-1.03) for a net increase in grades of only .04.
- * On the average, Business Education Majors received higher grades in the following course areas: English (1.52).
- * Business Education Majors received lower average grades in none of the course areas studied.

TABLE 25

Regressand: Grades in All Courses for Business Education Majors

Sample Mean: 3.57 S.D. = .58 N = 1235

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	-1.03	.61	-.88	.03
74	-1.05	.61	-.84	-.02
73	-.96	.61	-.62	.04
72	-1.02	.62	-.40	-.08
71	-1.07	.62	-.27	-.05
GPA	.94	.05	.50	.51
Vocational & Career Dev.	.65	.50	.46	.11
English	1.52	.71	.07	.02
Marketing	.15	.54	.02	-.07
Counseling & Psy. Services	.68	.51	.16	.01
Physics	-.26	.71	-.01	-.03
Art	-.17	.71	-.01	-.03
Educational Foundations	.50	.50	.34	-.05
Hours	-.001	.001	-.02	-.06
Information Systems	.37	.55	.04	-.02
MAT - Missing	.02	.03	.02	-.01
Educational Administration	.59	.51	.14	.02
Economics	.62	.52	.11	.002
Curriculum & Instruction	.55	.50	.24	-.01
Age	-.001	.002	-.01	-.01
Age - Missing	.03	.09	.01	-.003
Psychology	.67	.71	.03	.02
Business Administration	.48	.52	.09	-.02
Veteran	.03	.07	.02	-.05
Female	.02	.06	.02	.08
Management	.54	.51	.14	.004
Library Science Media	.56	.54	.07	.03
Minority	-.01	.03	-.01	-.16
Business Education	.52	.50	.44	-.04
Special Education	.53	.52	.10	-.05
Accounting	.56	.58	.05	.04
Sociology	.50	.61	.03	-.01
Political Science	.53	.71	.03	.02
Music	.50	.71	.02	.02
Physical Education	.50	.71	.02	.02
Constant	.73			

$$R^2 = .28$$

$$\bar{R}^2 = .26$$

Standard Error of Estimate = .50

HEGIS Code: 0838

91

Number of Majors = 133

A-51

ART MAJORS

The adjusted R^2 was .21. Highlights may be summarized as follows:

- * Grade Trends through Time:
Although data are missing for 1974, a general upward trend in average grades for Art Majors can be derived. Between 1971 (-.10) and 1975 (.15), grades rose an average of a quarter of a letter grade.
- * Art Majors did not average significantly higher or lower grades in any course area.

TABLE 26

Regressand: Grades in All Courses for Art Majors

Sample Mean: 3.67 S.D. = .54 N = 407

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	.15	.06	.12	.12
74				
73	- .0002	.07	-.0002	-.04
72	.05	.10	.03	-.01
71	- .10	.13	-.04	-.03
GPA	1.01	.11	.48	.47
Marketing	-.40	.61	-.05	-.02
HPRS	.51	.61	.07	.04
Educational Foundations	- .10	.54	-.02	-.04
Art	.08	.50	.04	-.07
Age - Missing	.15	.14	.06	-.10
Music	.57	.70	.05	.03
GRE - Verbal	.0004	.001	.06	.11
Minority	- .06	.09	-.04	-.01
MAT	- .002	.004	-.03	.04
Veteran	.05	.12	.03	.08
Psychology	.35	.71	.03	.03
Curriculum & Instruction	.23	.52	.07	.08
Mathematics	.34	.70	.03	.03
Special Education	.17	.52	.06	.02
GRE - Quantitative - Missing	.02	.10	.02	.01
Female	- .01	.06	-.01	.03
GRE - Quantitative	- .0002	.001	-.03	.09
Age	- .001	.004	-.01	.07
Constant	- .18			

$$R^2 = .26$$

$$\bar{R}^2 = .21$$

$$\text{Standard Error of Estimate} = .48$$

HEGIS Code: 1001

Number of Majors = 47

ART HISTORY MAJORS

Due to the small number of majors (4), valid statistical conclusions can not be stated as significant; however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .86. Highlights may be summarized as follows:

- * Grade Trends through Time:
Only three years of information are available so no grade trend can be ascertained.
- * Art History Majors did not average especially high or low grades in any course area.

TABLE 27

Regressand: Grades in All Courses for Art History Majors

Sample Mean: 3.52 S.D. = .87 N = 25

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.00	.20	.00	.25
74				
73	- .33	.27	-.18	-.69
72	1.25	.37	.47	-.08
71				
GPA	1.40	.25	.98	.80
Female	- .15	.21	-.08	-.21
Constant	-1.44			

$$R^2 = .89$$

$$\bar{R}^2 = .86$$

Standard Error of Estimate = .33

HEGIS Code: 1003

Number of Majors = 4

MUSIC HISTORY AND LITERATURE MAJORS

Due to the small number of majors (6), valid statistical conclusions can not be stated as significant; however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .36. Highlights may be summarized as follows:

- * Grade Trends through Time:
No grade trend can be derived since several years of data are not available.
- * Music History and Literature Majors did not average especially high or low grades in any course areas.

TABLE 28

Regressand: Grades in All Courses for Music History & Literature Majors

Sample Mean: 3.64 S.D. = .51 N = 84

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.21	.19	.16	.13
74				
73	-.04	.11	-.04	-.10
72	.32	.16	.23	.87
71				
GPA	.99	.26	.51	.55
Hours	.01	.01	.26	.24
Educational Foundations	.79	.44	.17	.08
GRE - Verbal	-.0004	.001	-.05	-.19
Mathematics	.33	.44	.07	.08
Female	.08	.16	.08	.17
Music	.55	.15	.04	.08
Constant	-.47			

$$R^2 = .43$$

$$\bar{R}^2 = .36$$

Standard Error of Estimate = .41

HEGIS Code: 1006

Number of Majors = 6

APPLIED PERFORMANCE MAJORS

The adjusted R^2 was .16. Highlights may be summarized as follows:

- * Grade Trends through Time:
Data are missing for several years so no data trend is available.
- * On the average, Applied Performance Majors received higher grades in none of the course areas studied.
- * Applied Performance Majors received lower average grades in the following course areas: History (-1.80) and Music (-.27). It is odd that Applied Performance Majors would average low grades in music courses. This finding is most probably due to the small sample size of this group.

TABLE 29

Regressand: Grades in All Courses for Applied Performance Majors

Sample Mean: 3.71 S.D. = .57 N = 135

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.06	.35	.05	.03
74	.15	.35	.12	.05
73	-.17	.36	-.08	-.15
72				
71				
History	-1.80	.54	-.27	-.26
GPA	1.28	.45	.36	.25
Music	-.27	.10	-.23	-.20
Female	.15	.15	.12	-.06
GRE - Quantitative	.001	.002	.07	-.06
MAT	-.01	.02	-.06	-.04
Hours	.001	.01	.02	-.13
Constant	-1.21			

$$R^2 = .22$$

$$\bar{R}^2 = .16$$

Standard Error of Estimate = .53

HEGIS Code: 1020

Number of Majors = 11

MUSICOLOGY MAJORS

Due to the small number of majors (3), valid statistical conclusions can not be stated as significant; however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .24. Highlights may be summarized as follows:

- * Grade Trends through Time: -----
Between 1971 (.09) and 1972 (.64), grades for Musicology Majors rose sharply by more than half a letter grade. The following year, grades decreased by more than one and a half grades, then rose by more than half a grade. Such extreme fluctuations are due to idiosyncracies of a small sample.
- * Musicology Majors did not average higher or lower grades in any of the course areas.

TABLE 30

Regressand: Grades in All Courses for Musicology Majors

Sample Mean: 3.72 S.D. = .46 N = 18

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75				
74	- .25	.33	-.26	-.09
73	- .91	.60	-.47	-.39
72	.64	.41	.45	.22
71	.09	.60	.06	-.18
Library Science Media	- .82	.57	-.58	-.18
Special Education	-1.09	.86	-.56	-.39
Educational Foundations	- .47	.54	-.39	-.06
Curriculum & Instruction	- .09	.60	-.09	-.17
Music	.04	.40	.03	.22
GPA	.20	1.22	.09	.44
Art	- .08	.51	-.04	.15
Constant	3.30			

$$R^2 = .69$$

$$\bar{R}^2 = .24$$

Standard Error of Estimate = .43

HEGIS Code: 1021

Number of Majors = 3

THEORY MAJORS

Due to the small number of majors (6), valid statistical conclusions cannot be stated as significant, however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .22. Highlights may be summarized as follows:

- * Grade Trends through Time:
Because data exists for only three years, no grade trends are analyzed.
- * Theory Majors did not receive especially high or low grades in any of the course areas studied.

TABLE 31

Regressand: Grades in All Courses for Theory Majors

Sample Mean: 3.59 S.D. = .61 N = 49

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .15	.43	-.13	.19
74	- .11	.42	-.09	-.22
73	.38	.45	.19	.01
72				
71				
GPA	1.01	1.44	.58	.51
Age	- .06	.14	-.22	.19
Music	.06	.22	.04	.03
Female	- .19	1.44	-.15	-.45
Constant	1.76			
$R^2 = .32$	.32			
$\bar{R}^2 = .22$	.22			

Standard Error of Estimate = .54

HEGIS Code: 1022

Number of Majors = 6

FRENCH MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
Fluctuating up and down from year to year, average grades for French Majors rose by a fifth of a letter grade between 1971 (-.25) and 1974 (-.04). Data are unavailable for 1975.
- * On the average, French Majors received higher grades in none of the course areas studied.
- * French Majors received lower average grades in the following course areas: History (-1.32) and English (-.30).

TABLE 32

Regressand: Grades in All Courses for French Majors

Sample Mean: 3.63 S.D. = .54 N = 152

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75				
74	- .04	.12	-.04	-.001
73	.06	.13	.05	.08
72	- .36	.16	-.26	-.11
71	- .25	.24	-.09	.14
GPA	.88	.26	.42	.49
History	-1.32	.48	-.20	-.25
English	- .30	.15	-.15	-.16
Counseling & Psy. Services	.20	.20	.09	.18
Educational Foundations	.09	.13	.05	.09
Veteran	.08	.17	.06	.14
GRE - Verbal - Missing	.05	.10	.05	.13
Sociology	.21	.49	.03	.06
Special Education	- .21	.49	-.03	-.10
Hours	.002	.007	.06	.31
GRE - Quantitative	- .0002	.001	-.03	.28
Psychology	.09	.47	.01	.06
Age	- .001	.01	-.02	-.17
Age - Missing	- .03	.21	-.01	-.21
Constant	.51			

$$R^2 = .35$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .46

HEGIS Code: 1102

Number of Majors = 16

GERMAN MAJORS

Due to the small number of majors (7), valid statistical conclusions cannot be stated as significant; however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .37. Highlights may be summarized as follows:

- * Grade Trends through Time:
With a slight increase in 1973 (-.12) average grades for German Majors fell between 1971 (.03) and 1975 (-.61). The net decrease was .64 of a letter grade during the study period.
- * German Majors did not average higher or lower grades in any of the course areas.
- * GRE-Verbal (.002) had a positive impact. German Majors with high scores of the verbal section of the GRE averaged high grades in course work.

TABLE 33

Regressand: Grades in All Courses for German Majors

Sample Mean: 3.55 S.D. = .53 N = 67

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	-.61	.41	-.53	-.31
74	-.31	.46	-.25	.09
73	-.12	.39	-.10	.08
72	-.15	.37	-.09	.11
71	.03	.36	.02	.29
GPA	.71	.31	.47	.57
GRE - Verbal - Missing	-.35	.21	-.32	.13
Age	-.01	.01	-.11	.18
Curriculum & Instruction	.39	.24	.19	.24
Educational Foundations	.27	.24	.12	.09
GRE - Verbal	.002	.001	.21	.21
Mathematics	.35	.31	.14	.05
History	-.19	.27	-.07	-.23
GRE - Quantitative	-.001	.001	-.09	.08
English	.08	.29	.03	.18
Constant	.98			

$$R^2 = .51$$

$$\bar{R}^2 = .37$$

Standard Error of Estimate = .42

HEGIS Code: 1103

Number of Majors = 7

SPANISH MAJORS

The adjusted R^2 was .15. Highlights may be summarized as follows:

- * Grade Trends through Time:
With a slight dip in 1974, average grades for Spanish Majors increased steadily from 1971 (.16) to 1975 (.48). During the study period, then, grades rose a third of a letter grade.
- * On the average, Spanish Majors received higher grades in the following course areas: Mathematics (1.02).
- * Spanish Majors received low average grades in none of the course areas studied.

TABLE 34

Regressand: Grades in All Courses for Spanish Majors

Sample Mean: 3.44 S.D. = .54 N = 227

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.48	.33	.37	.07
74	.42	.33	.33	-.03
73	.44	.33	.32	.07
72	.34	.33	.24	.002
71	.16	.33	.11	-.11
GPA	.96	.22	.37	.38
Mathematics	1.02	.45	.18	.10
English	-.26	.14	-.12	-.13
Minority	-.16	.22	-.07	-.22
Management	.53	.33	.16	.02
GRE - Quantitative	.001	.001	.05	.08
Hours	.003	.003	.08	.01
Veteran	-.35	.43	-.17	-.05
Age	.004	.01	.06	-.06
Political Science	.33	.39	.07	-.02
History	-.10	.15	-.04	-.03
Business Administration	.20	.46	.03	-.08
Educational Foundations	.05	.11	.03	.10
MAT	.01	.03	.03	-.07
Female	.07	.25	.04	.01
GRE - Verbal - Missing	.02	.10	.02	.02
Special Education	.03	.27	.01	-.05
Constant	-1.41			

$$R^2 = .23$$

$$\bar{R}^2 = .15$$

Standard Error of Estimate = .50

HEGIS Code: 1105

Number of Majors = 21

HEALTH ADMINISTRATION MAJORS

The adjusted R^2 was .20. Highlights may be summarized as follows:

- * Grade Trends through Time:
Although information was not available for 1972, grades for Health Administration Majors decreased an average of .41 of a letter grade between 1971 (.18) and 1973 (-.23). Average grades rose the following two years so that the eventual change in grades for Health Administration Majors was a decrease of one fifth of a letter grade.
- * Health Administration Majors did not receive higher average grades in any of the course areas studied.
- * Health Administration Majors received lower average grades in the following course areas: Accounting (-.86).
- * GMAT-Missing (.14) had a positive impact. Thus, HA Majors with data on the GMAT missing from their student records averaged high grades.

TABLE 35

Regressand: Grades in All Courses for Health Administration Majors

Sample Mean: 3.56 S.D. = .50 N = 600

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.001	.11	.001	.08
74	- .10	.11	-.09	-.01
73	- .23	.11	-.16	-.12
72				
71	.18	.23	.04	.07
GPA	.78	.09	.37	.38
Accounting	- .86	.42	-.24	-.18
GMAT - Missing	.14	.06	.11	.09
Business Administration	- .48	.41	.22	-.03
Hours	.001	.001	.05	.05
Quantitative Methods	.66	.44	-.11	-.03
Business Law	-1.06	.64	-.08	-.04
GMAT - Total	.001	.001	.12	.18
Age - Missing	.09	.08	.05	.10
Female	.17	.09	.10	-.01
Economics	- .50	.43	-.13	-.07
Health Administration	- .31	.41	-.25	.03
Veteran	.07	.06	.06	-.03
Age	- .004	.004	-.05	.07
Insurance & Risk	- .26	.41	-.12	.03
Finance	- .27	.46	-.05	.02
GMAT - Verbal	- .01	.01	-.01	.16
Minority	.05	.10	.03	-.14
Management	- .19	.42	-.07	.08
Marketing	- .25	.50	-.03	.05
Information Systems	- .12	.44	-.02	.04
Constant	.71			

$$R^2 = .23$$

$$\bar{R}^2 = .20$$

Standard Error of Estimate = .48

HEGIS Code: 1202

Number of Majors = 39

MEDICAL TECHNOLOGY MAJORS

The adjusted R^2 was .41. Highlights may be summarized as follows:

- * Grade Trends through Time:
Because data exist for 1974 and 1975 only, no trend is derived.
- * On the average, Medical Technology Majors received higher grades in none of the course areas studied.
- * Medical Technology Majors received lower average grades in the following course areas: Information Systems (-.65) and Health Administration (-.67).
- * MAT - Missing (.26) had a positive impact while Hours (-.01) was negative in effect. Medical Technology Majors with fewer hours of credit and those with MAT data missing from their records received higher average grades.

TABLE 36

Regressand: Grades in All Courses for Medical Technology Majors

Sample Mean: 3.51 S.D. = .69 N = 270

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.21	.15	.15	-.15
74	.35	.14	.25	.18
73				
72				
71				
GPA	.97	.11	.51	.51
Information Systems	-.65	.10	-.34	-.30
Health Administration	-.67	.11	-.28	-.26
Management	-.19	.10	-.09	.01
MAT - Missing	.26	.13	.17	.07
Physics	-.26	.27	-.05	-.05
MAT	.01	.01	.12	-.07
Hours	-.01	.004	-.10	.11
Curriculum & Instruction	.18	.26	.04	.11
Chemistry	.35	.40	.04	-.06
Veteran	-.06	.12	-.04	.15
Female	-.04	.11	-.03	-.07
Minority	.06	.11	.04	-.09
Age - Missing	-.09	.20	-.03	.08
Educational Foundations	-.14	.41	-.02	-.002
Constant	-.26			

$$R^2 = .44$$

$$\bar{R}^2 = .41$$

Standard Error of Estimate = .53

HEGIS Code: 1223

Number of Majors = 20

ENGLISH MAJORS

The adjusted R^2 was .26. Highlights may be summarized as follows:

- * Grade Trends through Time:
There was a steady, consistent increase in grades recorded for English Majors. Note that the estimator of each year is higher than that of the preceeding year. Between 1971 (-.30) and 1975 (-.02), average grades rose by .28, or one fourth, of a letter grade.
- * On the average, English Majors received neither higher nor lower grades than average in the courses studied.

TABLE 37

Regressand: Grades in All Courses for English Majors

Sample Mean: 3.58 S.D. = .53 N = 1295

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	-.02	.14	-.02	.09
74	-.07	.14	-.07	.04
73	-.13	.14	-.10	-.03
72	-.15	.14	-.09	-.04
71	-.30	.14	-.17	-.12
GPA	.92	.05	.47	.49
English	-.17	.09	-.12	-.13
Hours	.001	.001	.06	.15
Counseling & Psy. Services	-.18	.15	-.04	-.02
Sociology	-.65	.46	-.03	-.03
Special Education	-.21	.19	-.03	.04
Psychology	.30	.25	.03	.04
Curriculum & Instruction	.07	.10	.03	.11
MAT - Missing	.10	.10	.04	-.06
GRE - Quantitative - Missing	.03	.03	.03	.003
Female	-.03	.03	-.03	.04
Library Science Media	.35	.46	.02	.02
Educational Administration	-.25	.34	-.02	-.01
Age - Missing	.05	.09	.01	.001
MAT	.002	.004	.02	.05
History	.12	.33	.01	.03
GRE - Verbal	.0001	.0002	.01	.12
Minority	.02	.06	.01	-.05
Age	.001	.002	.01	.07
GRE - Quantitative	.00004	.0002	.01	.06
Educational Administration	-.02	.11	-.01	.04
Constant	.21			

$$R^2 = .28$$

$$\bar{R}^2 = .26$$

Standard Error of Estimate = .45

HEGIS Code: 1501

Number of Majors = 130

MATHEMATICS MAJORS

The adjusted R^2 was .47. Highlights may be summarized as follows:

- * **Grade Trends through Time:**
With a slight dip in 1973 (.54), average grades earned by Mathematics Majors rose every year during the study period. Between 1971 (.41) and 1975 (.69), grades increased by one-quarter of a letter grade.
- * On the average, Mathematics Majors received higher grades in the following course areas: Physics (.47).
- * Mathematics Majors received lower average grades in the following course areas: Actuarial Science (-.96), Economics (-.87), Information Systems (-.49), Accounting (-.57), and Mathematics (-.14).

TABLE 38

Regressand: Grades in All Courses for Mathematics Majors

Sample Mean: 3.53 S.D. = .66 N = 468

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.69	.50	.48	.04
74	.61	.50	.44	.07
73	.54	.49	.34	-.04
72	.55	.50	.25	.01
71	.41	.50	.13	-.15
GPA	.39	.07	.63	.65
Physics	.47	.22	.09	.01
Actuarial Science	-.96	.23	-.15	-.12
Economics	-.87	.24	-.14	-.15
Information Systems	-.49	.13	-.15	-.12
Accounting	-.57	.22	-.10	-.06
Mathematics	-.14	.07	-.09	.004
Female	-.09	.06	-.07	.06
Early Childhood Education	-.24	.19	-.05	.04
Age	-.01	.01	-.06	-.14
Veteran	.12	.10	.06	-.21
GRE - Quantitative Missing	.002	.13	.001	.16
Age - Missing	.14	.13	.04	-.07
Educational Foundations	-.07	.11	-.03	.09
Minority	-.08	.11	-.05	-.25
MAT - Missing	-.11	.20	-.02	-.08
Hours	-.001	.001	-.02	-.07
GRE - Quantitative	-.0004	.001	-.04	.02
GRE - Verbal	.0002	.0004	.02	.17
Management	-.10	.30	-.01	-.02
Constant	.06			

$$R^2 = .49$$

$$\bar{R}^2 = .47$$

Standard Error of Estimate = .48

HEGIS Code: 1701

Number of Majors = 47

PHYSICS MAJORS

The adjusted R^2 was .34. Highlights may be summarized as follows:

- * Grade Trends through Time:
Although data are missing for 1974, a steady decreasing trend in average grades for Physics Majors can be determined. During the study period, grades declined more than one third of a letter grade.
- * On the average, Physics Majors received higher grades in the following course areas: Educational Foundations (.61), Educational Administration (.72), and Curriculum & Instruction (.48).
- * Physics Majors received lower average grades in the following course areas: Management (-1.17).
- * Age (-.02) had a negative impact meaning that, on the average, younger Physics Majors received higher grades.

TABLE 39

Regressand: Grades in All Courses for Physics Majors

Sample Mean: 3.45 S.D. = .61 N = 154

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	- .12	.11	-.07	-.14
74				
73	- .02	.14	-.02	.01
72	.18	.21	.08	.06
71	.23	.19	.10	.004
GPA	.96	.15	.50	.51
Educational Foundations	.71	.20	.23	.16
Educational Administration	.72	.25	.21	.17
Management	-1.17	.53	-.16	-.19
Mathematics	-.48	.27	-.13	-.12
Age	-.02	.01	-.15	-.06
Curriculum & Instruction	.18	.23	.17	.09
Psychology	.47	.27	.14	.17
Hours	-.003	.01	-.06	.10
Minority	.17	.13	.14	.02
Information Systems	-.21	.30	-.05	-.03
GRE - Verbal	.001	.001	.13	.08
GRE - Verbal - Missing	-.17	.13	-.14	.24
Female	-.09	.22	-.04	-.18
Veteran	.04	.14	.02	-.02
Constant	.27			

$$R^2 = .42$$

$$\bar{R}^2 = .34$$

Standard Error of Estimate = .49

HEGIS Code: 1902

Number of Majors = 18

CHEMISTRY MAJORS

The adjusted R^2 was .21. Highlights may be summarized as follows:

- * Grade Trends through Time:
Between 1971 (.25) and 1975 (.78), average grades received by Chemistry Majors increased by .53. An increase in grades of more than half a letter grade is quite large for a five year study period.
- * On the average, Chemistry Majors received higher grades in none of the course areas studied.
- * Chemistry Majors received lower average grades in the following course areas: Information Systems (-1.32), Mathematics (-.78), Educational Foundations (-.92), Chemistry (-.56), and Curriculum & Instruction (-.81).

TABLE 40

Regressand: Grades in All Courses for Chemistry Majors

Sample Mean: 3.50 S.D. = .75 N = 297

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	.78	.42	.49	.11
74	.58	.42	.35	.02
73	.64	.41	.35	.04
72	.50	.42	.20	-.12
71	.25	.44	.07	-.16
GPA	.92	.23	.32	.38
Information Systems	-1.32	.27	.43	-.25
Hours	.003	.003	.08	-.05
Mathematics	- .78	.28	-.25	-.06
Educational Foundations	- .92	.36	-.17	-.03
Chemistry	- .56	.23	-.33	.13
Curriculum & Instruction	- .81	.30	-.21	.001
Physics	- .67	.41	-.10	.0003
Minority	- .28	.18	-.12	-.21
Female	.14	.11	.09	.11
Veteran	.09	.15	.05	.06
GRE - Verbal	- .0004	.001	-.05	.15
GRE - Quantitative	- .001	.001	-.06	.15
Business Administration	- .25	.72	-.02	.04
Management	- .25	.72	-.02	.04
Biology	- .17	.53	-.02	.0002
Quantitative Methods	- .19	.71	-.01	.04
Constant	.56			

$$R^2 = .26$$

$$\bar{R}^2 = .21$$

Standard Error of Estimate = .67

HEGIS Code: 1905

Number of Majors = 22

PSYCHOLOGY MAJORS

The adjusted R^2 was .20. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for Psychology Majors fluctuated throughout the study period. Between 1971 (.21) and 1972 (.30), grades increased slightly but decreased and stabilized the following two years. In 1975 (.35), grades rose again for a net change in grades for the period of .14 of a letter grade.
- * On the average, Psychology Majors received higher grades in the following course areas: Physics (.62), Educational Foundations (.41), Psychology (.31), and Sociology (.34).
- * Psychology Majors received lower average grades in none of the course areas studied.
- * Hours (.001) had a positive impact. In general, then, as the hours credit a Psychology Major earned increased, average grades increased.

TABLE 41

Regressand: Grades in All Courses for Psychology Majors

Sample Mean: 3.75 S.D. = .53 N = 2981

Regressor	Estimator	Standard Error of Estimator	B	Simple r
Year of Course: 75	.35	.08	.30	.07
74	.27	.08	.24	-.02
73	.26	.08	.20	-.02
72	.30	.08	.19	.01
71	.21	.08	.11	-.04
GPA	.95	.04	.40	.42
Information Systems	.04	.13	.01	-.14
Hours	.001	.0003	.06	.09
Business Education	-.52	.49	-.02	-.03
Educational Administration	-.45	.49	-.02	-.03
Art	-.30	.49	-.01	-.03
GRE - Verbal	-.0001	.0001	-.02	.07
Physics	.62	.30	.04	.02
Educational Foundations	.41	.15	.09	.01
Female	-.01	.02	-.01	.04
Special Education	.27	.15	.06	-.02
MAT - Missing	.07	.04	.05	.03
MAT	.003	.002	.04	.01
History	.52	.49	.02	.01
Age	-.001	.002	-.01	-.02
Age - Missing	-.05	.07	-.01	.01
Minority	.03	.05	.01	-.04
Veteran	.01	.03	.01	-.02
Chemistry	.52	.49	.02	.01
Curriculum & Instruction	.26	.18	.04	-.04
Counseling & Psy. Services	.33	.14	.10	.01
Psychology	.31	.13	.20	.09
Sociology	.34	.16	.06	.01
Management	.35	.18	.04	.003
Health Administration	.33	.19	.04	.03
Early Childhood Education	.37	.23	.03	-.02
Business Administration	.40	.30	.02	.02
Political Science	.40	.49	.01	.01
English	.36	.49	.01	.01
Marketing	.36	.49	.01	.01
Insurance & Risk	.34	.49	.01	.01
GRE - Verbal - Missing	.004	.02	.004	-.05
Constant	-.56			

 $R^2 = .21$ $R^2 = .20$

Standard Error of Estimate = .47

HEGIS Code: 2001

Number of Majors = 185

A-83

COUNSELING & PSYCHOLOGICAL SERVICES MAJORS

The adjusted R^2 was .26. Highlights may be summarized as follows:

* Grade Trends through Time:

Average grades for CPS Majors peaked in the middle of the study period. Between 1971 (-.12) and 1973 (-.05), grades increased slightly, but then declined to 1975 (-.14). The net change was a decrease of only .02 of a letter grade.

- * On the average, Counseling & Psychological Services Majors received higher grades in the following course areas: Psychology (.41), Vocational & Career Development (.65), Special Education (.43), Educational Administration (.41), Educational Foundations (.52), Business Administration (.68), Library Science Media (.89), Insurance & Risk (.97), HPRS (.83), Art (.73), Business Education (.40), Sociology (.54), Physical Education (.56), Counseling & Psy. Services (.49), Curriculum & Instruction (.50), Management (.47), Early Childhood Education (.47), Economics (.56), and Music Education (.50).

- * Counseling & Psychological Services Majors received lower average grades in the following course areas: Quantitative Methods (-.93).

TABLE 42

Regressand: Grades in All Courses for Counseling & Psychological Services Majors

Sample Mean: 3.67 S.D. = .53 N = 8608

Regressor	Estimator	Standard Error of Estimator	B	Simple r
Year of Course: 75	-.14	.19	-.13	-.07
74	-.09	.19	-.08	.01
73	-.05	.19	-.04	.05
72	-.08	.19	-.04	.002
71	-.12	.19	-.05	.03
GPA	.94	.02	.48	.50
Urban Life	.18	.15	.03	-.12
Quantitative Methods	-.93	.35	-.03	-.06
Psychology	.41	.14	.18	.003
Geography	-.96	.47	-.02	-.03
Vocational & Career Dev.	.65	.15	.12	.02
Business Law	-.16	.26	-.01	-.03
Political Science	-.03	.26	-.001	-.03
Accounting	-.12	.30	-.004	-.04
Special Education	.43	.14	.14	-.002
Educational Administration	.41	.14	.09	-.03
Educational Foundations	.52	.14	.37	.06
English	.27	.19	.02	-.02
Business Administration	.68	.18	.06	-.002
Library Science Media	.89	.30	.03	.01
Insurance & Risk	.97	.35	.03	.01
HEPS	.83	.26	.03	.01
Veteran	-.01	.01	-.01	-.05
Art	.73	.26	.03	-.01
Mathematics	.30	.23	.02	-.03
MAT	.001	.001	.01	.13
Age	-.001	.001	-.01	-.02
Information Systems	.32	.23	.02	-.01
Business Education	.40	.18	.03	-.01
Sociology	.54	.15	.09	-.02
History	.35	.23	.02	-.0002
Hours	-.0001	.0002	-.01	.12
Physical Education	.56	.18	.05	.01
Counseling & Psy. Services	.49	.14	.45	-.01
Curriculum & Instruction	.50	.14	.15	.003
Management	.47	.15	.09	-.02
Early Childhood Education	.47	.16	.06	.01
Economics	.56	.22	.03	-.01
Music Education	.50	.25	.06	.02
Music	.53	.47	.01	.01
Age - Missing	.01	.02	.01	.02
Minority	-.01	.02	-.01	-.16
MAT - Missing	-.004	.01	-.003	.02
Female	.002	.01	.002	.04
Constant	.16			

 $R^2 = .26$ $\bar{R}^2 = .26$

Standard Error of Estimate = .45

HEGIS Code: 2004

Number of Majors = 669

URBAN ADMINISTRATION MAJORS

The adjusted R^2 was .43. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades increased and decreased apparently at will during the study period. Between 1971 (.38) and 1972 (-.37), grades decreased by three quarters of a letter grade in one year. There was a large increase the following year, but grades remained lower than at the beginning. The net decline was half a letter grade.
- * On the average, Urban Administration Majors received higher grades in the following course areas: Management (.36).
- * Urban Administration Majors received lower average grades in the following course areas: None.

TABLE 43

Regressand: Grades in All Courses for Urban Administration Majors

Sample Mean: 3.25 S.D. = .76 N = 334

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .11	.08	-.07	-.11
74				
73	- .02	.10	-.01	.04
72	- .37	.21	-.09	-.02
71	.38	.34	.05	.09
GPA	1.07	.09	.64	.62
Mathematics	- .29	.15	-.12	-.18
Management	.36	.15	.15	.08
Curriculum & Instruction	.83	.44	.08	.08
Accounting	- .63	.44	-.06	-.08
Business Law	.46	.28	.07	.09
Information Systems	- .25	.32	-.04	.0002
Psychology	.40	.43	.04	.08
Age - Missing	.12	.21	.03	.19
Marketing	.53	.60	.04	-.02
Hours	.004	.003	.05	.04
Urban Life	.07	.12	.05	.04
Economics	.10	.21	.02	.01
Age	- .01	.01	-.05	-.08
Veteran	.09	.13	.05	-.31
Educational Administration	.14	.43	.01	.08
Educational Foundations	- .17	.60	-.01	-.02
Political Science	- .02	.16	-.01	-.02
Sociology	.03	.25	.01	.01
Constant	- .23			

$$R^2 = .46$$

$$\bar{R}^2 = .43$$

Standard Error of Estimate = .58

HEGIS Code: 2102

Number of Majors = 31

A-87

URBAN GOVERNMENT AND ADMINISTRATION MAJORS

Due to the small number of majors (4), valid statistical conclusions cannot be stated as significant; however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .35. Highlights may be summarized as follows:

- * Grade Trends through Time:---
With the exception of 1973 (-.01), grades remained stable for Urban Government and Administration Majors. Data were unavailable for 1971.
- * On the average, Urban Government and Administration Majors did not receive markedly higher or lower grades in the course areas studied.

TABLE 44

Regressand: Grades in All Courses for Urban Government & Administration Majors

Sample Mean: 3.54 S.D. = .81 N = 46

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .28	.63	-.14	-.47
74	- .30	.52	-.18	-.04
73	- .01	.53	-.01	.34
72	- .32	.59	-.13	.11
71				
GPA	1.10	.42	.71	.63
Urban Life	.35	.23	.21	.13
Business Law	.65	.73	.12	-.10
Educational Administration	.36	.70	.07	.09
Sociology	.32	.75	.06	.09
Female	- .16	.35	-.10	.46
Mathematics	- .06	.31	-.03	-.21
Constant	- .19			

$$R^2 = .49$$

$$\bar{R}^2 = .35$$

Standard Error of Estimate = .66

HEGIS Code: 2102

Number of Majors = 4

GOVERNMENT ADMINISTRATION MAJORS

The adjusted R^2 was .26. Highlights may be summarized as follows:

- * Grade Trends through Time:
Changing by no more than .02 of a letter grade from year to year, average grades for MGA students remained relatively stable throughout the study period.
- * On the average, MGA students received higher grades in none of the course areas studied.
- * Government Administration Majors received lower average grades in the following course areas: Economics (-.45) and Finance (-.54).
- * Hours (-.002) had a negative impact. On the average, as a MGA student increased in hours of credit, average grades fell.

TABLE 45

Regressand: Grades in All Courses for Government Administration Majors

Sample Mean: 3.45 S.D. = .59 N = 1224

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	-.02	.38	-.02	-.04
74	.01	.38	.01	-.01
73	.05	.38	.03	.04
72	.03	.39	.01	.02
71	.03	.39	.01	.04
GPA	.99	.05	.46	.46
Economics	-.45	.13	-.23	-.19
Management	-.0003	.12	-.0002	.15
Finance	-.54	.23	-.07	-.06
HPRS	.72	.53	.03	.03
Accounting	-.43	.24	-.05	-.01
Political Science	-.17	.12	-.12	-.04
Educational Foundations	.21	.24	.03	.03
Counseling & Psy. Services	.08	.17	.02	.01
Hours	-.002	.001	-.04	-.03
Mathematics	-.18	.13	-.07	-.04
Information Systems	-.35	.26	-.04	-.05
Quantitative Methods	-.38	.32	-.03	-.01
Health Administration	-.59	.53	-.03	-.02
Educational Administration	-.29	.24	-.03	-.01
Insurance & Risk	.15	.32	.01	.02
Female	-.03	.04	-.02	.01
Psychology	.22	.53	.01	.03
Business Administration	-.10	.12	-.06	.01
Physical Education	.13	.21	-.02	.08
MAT	-.001	.004	-.01	.01
Real Estate	-.10	.18	-.02	.02
Business Law	-.09	.15	-.02	.01
Urban Life	-.08	.14	-.03	.01
Sociology	-.09	.18	-.02	.02
Curriculum & Instruction	-.07	.32	-.01	.02
Music Education	.07	.44	.01	.01
Age	-.0003	.002	-.004	.01
GMAT	.002	.02	.003	.01
Constant	.19			

$$R^2 = .28$$

$$\bar{R}^2 = .26$$

Standard Error of Estimate

HEGIS Code: 2102

Number of Majors = 114

ECONOMICS MAJORS

The adjusted R^2 was .38. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for Economics Majors were stable throughout the study period. The eventual change was only .02 of a letter grade.
- * On the average, Economics Majors received higher grades in none of the course areas studied.
- * Economics Majors received lower average grades in the following course areas: Information Systems (-.57) and Accounting (-.61).
- * MAT (.02) had a positive impact. Economics Majors with high scores on the MAT averaged high grades in their courses.

TABLE 46

Regressand: Grades in All Courses for Economics Majors

Sample Mean: 3.44 S.D. = .67 N = 999

Regressor	Estimator	Standard Error of Estimator	β	Simple r
Year of Course:				
75	.27	.18	.19	.06
74	.27	.18	.17	-.04
73	.29	.18	.17	.001
72	.26	.18	.13	.002
71	.25	.19	.10	-.004
GPA	1.02	.05	.60	.61
Information Systems	-.57	.23	-.18	-.16
Accounting	-.61	.25	-.13	-.07
Business Administration	-.11	.22	-.07	.12
Urban Life	.43	.43	.03	.04
Health Administration	.32	.36	.03	.02
GMAT - Total	.06	.05	.04	-.09
MAT	.02	.01	.04	.06
Management	-.08	.25	-.02	.01
Real Estate	.02	.32	.002	.04
GRE - Verbal - Missing	.12	.06	.05	.05
Mathematics	.0004	.26	.0001	.06
GRE - Verbal	-.0004	.001	-.03	.08
Female	-.05	.06	-.02	-.001
Political Science	.15	.58	.01	.03
Finance	-.31	.24	-.09	.02
Hours	.0004	.001	.02	.10
GMAT - Verbal	.02	.03	.10	.12
Minority	.01	.05	.01	-.07
GMAT	-.002	.04	-.13	.14
GMAT - Quantitative	.01	.03	.06	.13
Psychology	-.06	.66	-.003	.03
Quantitative Methods	-.28	.26	-.05	.0004
Economics	-.24	.22	-.18	-.06
Marketing	-.28	.26	-.05	-.02
Curriculum & Instruction	-.23	.31	-.03	.01
Educational Foundations	-.23	.43	-.02	.004
Business Law	-.29	.57	-.01	.03
History	-.18	.57	-.01	-.02
Age - Missing	.02	.06	.01	.04
GRE - Quantitative	-.0001	.001	-.01	.05
Age	.001	.01	.003	-.01
Constant	-.54			

 $R^2 = .41$ $\bar{R}^2 = .38$

Standard Error of Estimate = .52

HEGIS Code: 2204

Number of Majors = 69

A-93

LAND ECONOMICS & URBAN AFFAIRS MAJORS

The adjusted R^2 was .24. Highlights may be summarized as follows:

- * Grade Trends through Time:
After an initial increase the first year of the study, average grades for Land Economics Majors decreased for the rest of the period. Between 1971 (-.40) and 1972 (-.22), grades increased by .18 of a letter grade, then fell to the initial level by 1975 (-.42).
- * On the average, Land Economics Majors did not receive markedly higher or lower grades in any of the course areas studied.
- * GMAT-missing (.24) had a positive impact. Land Economics Majors who were missing GMAT scores on their student records averaged one quarter of a letter grade higher in average grades than those with such data.

TABLE 47

Regressand: Grades in All Courses for Land Economics & Urban Affairs Majors

Sample Mean: 3.48 S.D. = .62 N = 288

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .42	.28	-.29	-.10
74	- .34	.28	-.22	.04
73	- .24	.27	-.17	.17
72	- .22	.27	-.14	-.01
71	- .40	.28	-.17	-.15
GPA	1.04	.18	.41	.36
Accounting	- .80	.57	-.26	-.19
Economics	- .63	.60	-.30	-.15
GMAT - Missing	.24	.11	.14	.06
Quantitative Methods	- .72	.59	-.18	-.09
Information Systems	- .34	.56	-.16	-.04
Geography	- .75	.67	-.10	-.06
Finance	- .25	.56	-.11	-.01
Business Administration	- .16	.55	-.11	.06
Female	- .15	.18	-.06	-.06
Hours	- .001	.001	-.08	-.05
Insurance & Risk	- .52	.79	-.05	-.05
Minority	.11	.11	.06	.02
Real Estate	.05	.56	-.04	.08
GMAT	.0003	.001	.03	.09
Business Law	- .04	.63	-.01	.03
Marketing	.002	.59	.001	.04
Veteran	- .01	.10	-.01	-.15
Mathematics	.13	.63	.02	.09
Urban Life	.10	.60	.02	.08
Management	.06	.56	.03	.09
Constant	.33			

$$R^2 = .31$$

$$\bar{R}^2 = .24$$

Standard Error of Estimate = .54

HEGIS Code: 2204

Number of Majors = 17

HISTORY MAJORS

The adjusted R^2 was .27. Highlights may be summarized as follows:

- * Grade Trends through Time:
Average grades for History Majors declined the first of the period, from 1971 (-.05) to 1973 (-.07). In 1974 (.05), grades reversed the trend, but declined again in 1975 (.03).
- * History Majors did not average especially high or low grades in any of the course areas studied.

TABLE 48

Regressand: Grades in All Courses for History Majors

Sample Mean: 3.56 S.D. = .56 N = 670

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	.03	.25	.02	.03
74	.05	.25	.04	.05
73	-.07	.25	-.05	-.10
72	-.06	.25	-.04	-.01
71	-.05	.25	-.03	.05
GPA	1.00	.07	.51	.51
History	-.21	.15	-.15	-.06
Geography	.31	.23	.06	.05
Curriculum & Instruction	.05	.16	.02	.07
Counseling & Psy. Services	.39	.37	.04	.04
Urban Life	-.60	.37	-.06	-.06
English	-.36	.26	-.06	.01
Hours	.001	.001	.04	.12
Physical Education	-.29	.26	-.04	-.06
GRE - Quantitative	.0002	.0002	.03	.11
Political Science	-.19	.20	-.05	-.01
Age	.004	.004	.04	.06
Age - Missing	.08	.09	.04	.02
Veteran	-.03	.05	-.02	-.06
GRE - Quantitative - Missing	-.03	.04	-.02	-.04
Economics	-.27	.37	-.03	-.01
HPRS	-.19	.31	-.02	-.03
Quantitative Methods	-.27	.50	-.02	-.04
Educational Foundations	-.07	.16	-.03	-.001
Minority	-.03	.09	-.02	.002
Female	-.01	.04	-.01	.14
Psychology	.08	.37	.01	.04
Sociology	.08	.33	.09	.05
Constant	-.09			

$$R^2 = .30$$

$$\bar{R}^2 = .27$$

Standard Error of Estimate = .48

HEGIS Code: 2205

Number of Majors = 61

GEOGRAPHY MAJORS

The adjusted R^2 was .19. Highlights may be summarized as follows:

- * Grade Trends through Time:
Although data are missing for 1975, a steady increasing trend is discernible for average grades earned by Geography Majors. Between 1971 (-.04) and 1974 (.11), grades rose by .15 of a letter grade.
- * On the average, Geography Majors received higher grades in none of the course areas studied.
- * Geography Majors received lower average grades in the following course areas: Marketing (-1.30).
- * GRE-Quantitative (.002) had a positive impact. Geography Majors with high scores on the quantitative section of the GRE averaged high grades in their courses.

TABLE 49

Regressand: Grades in All Courses for Geography Majors

Sample Mean: 3.64 S.D. = .53 N = 176

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75				
74	.11	.11	.09	.13
73	.08	.12	.07	-.02
72	.05	.15	.04	-.09
71	-.04	.28	-.01	.05
GPA	.78	.20	.44	.45
Marketing	-1.30	.54	-.19	-.24
Information Systems	-.18	.28	-.06	-.11
Hours	.002	.003	.10	-.13
Mathematics	.28	.23	.13	.10
Female	.08	.12	.07	.05
Political Science	-.21	.39	-.04	-.03
Economics	.30	.54	-.04	-.09
Management	-.05	.35	-.01	-.11
Health Administration	.62	.53	.09	.05
GRE - Quantitative	.002	.001	.12	.11
GRE - Quantitative - Missing	.13	.11	.12	-.07
History	-.04	.29	-.01	-.08
GRE - Verbal	-.001	.001	-.06	-.06
Curriculum & Instruction	.21	.27	.08	.08
Geography	.13	.18	.12	.10
English	.27	.52	.04	.05
Educational Foundations	.16	.27	.05	.01
Veteran	-.03	.11	-.02	-.13
Real Estate	.09	.39	.02	-.03
Urban Life	.07	.40	.01	-.03
Minority	-.05	.25	-.02	-.21
MAT	-.001	.01	-.01	-.14
Constant	-.10			

$$\bar{R}^2 = .31$$

$$\bar{R}^2 = .19$$

Standard Error of Estimate = .47

HEGIS Code: 2206

Number of Majors = 17

POLITICAL SCIENCE MAJORS

The adjusted R^2 was .33. Highlights may be summarized as follows:

- * Grade Trends through Time:
With the exception of a dip in 1974 (-.02), the trend of average grades for Political Science Majors was upward. Between 1971 (-.17) and 1975 (.01), grades rose by .18 of a letter grade.
- * On the average, Political Science Majors received higher grades in the following course areas: Real Estate (.75).
- * Political Science Majors received lower average grades in the following course areas: Information Systems (-.95) and Quantitative Methods (-.94).

TABLE 50

Regressand: Grades in All Courses for Political Science Majors

Sample Mean: 3.51 S.D. = .64 N = 681

Regressor	Estimator	Standard Error of Estimator	B	Simple r
Year of Course: 75	.01	.25	.003	.02
74	-.02	.25	-.01	-.004
73	.02	.25	.02	.02
72	-.09	.25	-.04	-.06
71	-.17	.25	-.08	-.004
GPA	.90	.08	.49	.54
Information Systems	-.95	.27	-.16	-.22
Quantitative Methods	-.94	.33	-.11	-.12
Real Estate	.75	.36	.08	.05
Management	.15	.22	.04	.02
Mathematics	-.23	.21	-.08	-.05
Accounting	-.88	.56	-.05	-.09
Minority	-.05	.06	-.03	-.23
Age	.002	.01	.02	.05
Curriculum & Instruction	.10	.24	.02	.05
GRE - Quantitative - Missing	-.05	.05	-.04	-.12
GRE - Quantitative	.001	.0003	.07	.17
Psychology	-.21	.27	-.04	.01
Educational Administration	.19	.25	.04	.03
MAT	.01	.01	.10	.10
MAT - Missing	.35	.18	.09	-.05
History	-.15	.23	-.04	.01
Special Education	.25	.56	.02	.03
GRE - Verbal	-.0003	.0004	-.03	.11
Geography	.07	.31	.01	.01
Business Administration	-.003	.23	-.001	-.04
Business Law	-.34	.57	-.02	-.03
Economics	.14	.28	-.02	-.01
Finance	.03	.33	.004	-.06
Sociology	.11	.58	.01	.03
Veteran	.03	.06	.02	.05
Female	.03	.07	.02	.13
Counseling & Psy. Services	-.11	.26	-.02	.03
Political Science	-.07	.19	-.05	.10
Urban Life	-.06	.22	-.02	-.04
Educational Foundations	-.06	.23	-.01	-.01
Constant	-.61			

$$R^2 = .36$$

$$\bar{R}^2 = .33$$

Standard Error of Estimate = .52

HBGIS Code: 2207

Number of Majors = 61

SOCIOLOGY MAJORS

The adjusted R^2 was .37. Highlights may be summarized as follows:

- * Grade Trends through Time:
In 1971 (-.03), 1973 (-.04), and 1974 (-.01), grades for Sociology Majors were relatively stable but in 1972 (.28), there was an unusual increase in average grades. No data are shown for 1975.
- * Sociology Majors did not average especially higher or lower grades in any of the course areas studied.
- * GRE - Verbal - Missing (-.12) had a negative impact. Thus, Sociology Majors who had no data on the verbal section of the GRE in their student records averaged lower grades.

TABLE 51

Regressand: Grades in All Courses for Sociology Majors

Sample Mean: 3.61 S.D. = .64 N = 493

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75				
74	- .01	.05	-.01	-.001
73	- .04	.08	-.02	-.08
72	.28	.12	.11	.01
71	- .03	.51	-.002	.03
GPA	1.00	.09	.55	.56
Information Systems	- .30	.37	-.11	-.21
Accounting	- .79	.51	-.08	-.11
Management	- .11	.40	-.02	-.08
Chemistry	.55	.39	.14	.10
Geography	- .06	.41	-.01	-.15
Counseling & Psy. Services	.60	.39	.14	.03
GRE - Verbal - Missing	- .12	.06	-.09	-.09
Mathematics	- .31	.51	-.03	-.06
Economics	- .29	.51	-.03	-.06
MAT - Missing	.09	.23	.03	.001
Special Education	- .03	.43	-.01	-.19
Minority	.09	.08	.05	.01
Female	- .07	.06	-.05	.16
Age - Missing	- .14	.10	-.07	.04
Age	- .01	.004	-.06	-.03
Psychology	.55	.48	.07	.05
GRE - Verbal	.001	.001	.06	.09
GRE - Quantitative	- .0004	.0004	-.05	.09
Real Estate	.06	.63	.004	-.04
Hours	- .001	.003	-.02	.14
MAT	- .01	.01	-.04	.02
Urban Life	.21	.46	.03	.05
Educational Foundations	.37	.44	.06	-.10
Sociology	.31	.36	.20	.24
Political Science	.44	.63	.03	.03
Quantitative Methods	.29	.63	.02	.03
Constant	.13			

$$R^2 = .41$$

$$\bar{R}^2 = .37$$

Standard Error of Estimate = .50

HEGIS Code: 2208

Number of Majors = 47

CRIMINAL JUSTICE MAJORS

The adjusted R^2 was .31. Highlights may be summarized as follows:

- * Grade Trends through Time:
Fluctuating up and down slightly from year to year, average grades earned by Criminal Justice Majors showed a net increase of .16 of a letter grade between 1971 (.12) and 1975 (.28).
- * On the average, Criminal Justice Majors received higher grades in the following course areas: Business Administration (.25).
- * Criminal Justice Majors did not average lower grades in any of the course areas studied.

TABLE 52

Regressand: Grades in All Courses for Criminal Justice Majors

Sample Mean: 3.29 S.D. = .71 N = 494

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	.28	.60	.20	-.08
74	.29	.60	.19	.07
73	.20	.60	.09	.02
72	.22	.60	.09	.02
71	.12	.62	.03	-.01
GPA	1.03	.08	.54	.52
Mathematics	- .20	.31	-.09	-.20
Urban Life	.18	.30	.12	-.01
Information Systems	- .11	.43	-.01	-.004
Age	- .01	.01	-.06	-.01
Political Science	.17	.34	.04	-.01
Educational Administration	1.18	.68	.07	.05
Business Administration	.25	.05	.35	.04
Psychology	.18	.41	.03	.02
Hours	- .004	.003	-.06	.11
Educational Foundations	.72	.46	.08	.04
Counseling & Psy. Services	.56	.32	.19	.11
Business Law	.58	.35	.12	.06
Chemistry	.76	.67	.05	.05
Sociology	.49	.35	.11	.08
Management	.42	.35	.09	.03
Economics	.51	.52	.05	.02
Curriculum & Instruction	.35	.53	.03	.02
Age - Missing	.07	.12	.02	-.01
Female	.04	.07	.03	-.04
Minority	- .04	.07	-.02	-.22
Veteran	.02	.09	.02	-.02
MAT	- .002	.01	-.01	.04
Constant	- .04			

$$R^2 = .35$$

$$\bar{R}^2 = .31$$

Standard Error of Estimate = .59

HEGIS Code: 2209

Number of Majors = 47

PHILOSOPHY MAJORS

Due to the small number of majors (5), valid statistical conclusions cannot be stated as significant; however, the findings will be presented in order that some notion of causal effect is conveyed.

The adjusted R^2 was .53. Highlights may be summarized as follows:

- * Grade Trends through Time:
Only two years of data are available so no grade trend for Philosophy Majors is determined.
- * On the average, Philosophy Majors received higher grades in none of the course areas studied.
- * Philosophy Majors received lower average grades in the following course areas: English (-.91).

TABLE 53

Regressand: Grades in All Courses for Philosophy Majors

Sample Mean: 3.42 S.D. = .59 N = 40

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>B</u>	<u>Simple r</u>
Year of Course: 75	.31	.26	.26	.50
74	-.03	.28	-.03	-.29
73				
72				
71				
GPA	.62	.20	.38	.60
English	-.91	.31	-.41	-.53
Age	.01	.02	.04	-.03
Constant	.94			

$$R^2 = .58$$

$$\bar{R}^2 = .53$$

Standard Error of Estimate = .41

HEGIS Code: 2599

Number of Majors = 5

PHYSICAL EDUCATION MAJORS

The adjusted R^2 was .25. Highlights may be summarized as follows:

- * Grade Trends through Time:
The net change in average grades for Physical Education Majors declined by .06 of a letter grade during the study period. There was no information for 1971.
- * On the average, Physical Education Majors received higher grades in none of the course areas studied.
- * Physical Education Majors received lower average grades in the following course areas: Biology (-.93) and Early Childhood Education (-.76).

TABLE 54

Regressand: Grades in All Courses for Physical Education Majors

Sample Mean: 3.45 S.D. = .62 N = 1151

<u>Regressor</u>	<u>Estimator</u>	<u>Standard Error of Estimator</u>	<u>β</u>	<u>Simple r</u>
Year of Course: 75	- .11	.14	-.09	.01
74	- .04	.13	-.03	-.01
73	- .03	.14	-.02	.02
72	- .05	.15	-.02	-.04
71				
GPA	1.01	.07	.50	.49
HPRS	- .14	.27	-.11	.07
English	.66	.42	.05	.02
Biology	- .93	.36	-.10	-.07
Early Childhood Education	- .76	.35	-.09	-.07
Management	.05	.33	.01	.01
Geography	.28	.47	.02	.003
Counseling & Psy. Services	- .41	.30	-.09	-.06
Sociology	- .66	.41	-.05	-.01
History	- .61	.38	-.06	-.07
Physics	.13	.47	.01	.003
Special Education	- .35	.30	-.08	-.01
Psychology	- .49	.41	-.04	-.01
Minority	- .02	.05	-.01	-.23
Urban Life	- .64	.61	-.03	-.02
Physical Education	- .26	.27	-.19	-.01
Educational Foundations	- .25	.27	-.15	-.02
MAT - Missing	.01	.04	.01	.01
Curriculum & Instruction	- .22	.28	-.08	-.01
Political Science	- .31	.41	-.03	-.01
Educational Administration	- .20	.31	-.04	-.01
Female	- .03	.04	-.02	.22
Veteran	.. .03	.06	-.02	-.15
Hours	.0004	.001	.01	.04
Age	- .001	.004	-.01	-.09
Age - Missing	- .03	.08	-.01	-.12
MAT	.001	.002	.01	.07
Library Science Media	- .14	.47	-.01	.04
Music	- .13	.47	-.01	.003
Art	- .12	.48	-.01	.04
Constant	.26			

$$R^2 = .27$$

$$R^2 = .25$$

Standard Error of Estimate = .54

HEGIS Code: 2699

149

Number of Majors = 125

UNDECLARED MAJORS

The adjusted R^2 was .30. Highlights may be summarized as follows:

- * Grade Trends through Time:
There was no evident change in average grades earned by graduate students without a declared major. Note that the estimator for each year is never more than .03 higher or lower than the previous year.
- * On the average, Undeclared Majors received higher grades in the following course areas: Real Estate (.39).
- * Undeclared Majors received lower average grades in the following course areas: History (-.52), Accounting (-.65), and Information Systems (-.51).

TABLE 55

Regressand: Grades in All Courses for Undeclared Majors

Sample Mean: 3.56 S.D. = .60 N = 2454

Regressor	Estimator	Standard Error of Estimator	S	Simple r
Year of Course: 75	.02	.21	.02	-.04
74	.05	.21	.04	.01
73	.02	.21	.01	.03
72	.03	.21	.02	.01
71	.03	.21	.01	.01
GPA	.92	.04	.51	.53
History	-.52	.12	-.10	-.11
Accounting	-.65	.15	-.09	-.12
Real Estate	.39	.15	.05	.05
Information Systems	-.51	.16	-.06	-.07
Curriculum & Instruction	.03	.09	.02	.10
Vocational & Career Dev.	.20	.13	.03	.02
Management	.10	.11	.02	.004
Geography	.29	.19	.03	.01
Business Administration	.02	.10	.01	-.02
Music	.20	.17	.02	.05
Political Science	-.27	.14	-.04	-.04
Biology	-.30	.17	-.03	-.03
Marketing	-.21	.15	-.03	-.06
Minority	-.03	.03	-.02	-.19
Library Science Media	.09	.14	.01	.04
HPRS	-.18	.14	-.03	-.05
Female	-.04	.03	-.03	.06
Special Education	-.02	.09	-.01	.08
Physics	-.32	.30	-.02	-.01
Insurance & Risk	-.51	.51	-.02	-.02
Psychology	-.17	.14	-.03	.01
Veteran	-.03	.03	-.02	.02
MAT - Missing	.02	.03	.01	.07
Business Law	.12	.22	.01	-.01
Finance	.06	.15	.01	-.01
Chemistry	-.19	.19	-.02	-.001
Art	-.15	.15	-.02	-.02
Mathematics	-.10	.11	-.03	-.03
Educational Administration	-.08	.09	-.04	.02
Business Education	-.10	.11	-.02	-.02
English	-.14	.14	-.03	-.02
Quantitative Methods	-.19	.27	-.01	-.05
GRE - Quantitative	-.0004	.001	-.01	.03
Music Education	-.20	.28	-.02	-.02
Educational Foundations	-.06	.09	-.04	.02
GMAT - Verbal - Missing	.03	.07	.01	.09
GMAT - Verbal	-.01	.02	-.03	.07
GMAT	.001	.002	.02	.07
Sociology	-.09	.16	-.01	-.02
Mathematics	.001	.002	.01	.10
Hours	.0001	.001	.01	.10
Economics	-.06	.14	-.01	-.02
Age - Missing	.01	.04	.003	-.03
Early Childhood Education	-.05	.10	-.01	-.02
Counseling & Psy. Services	-.04	.09	-.02	.02
Urban Life	-.04	.10	-.01	-.10
Physical Education	-.04	.12	-.01	-.04
Constant	.36			

 $R^2 = .32$ $R^2 = .30$

Standard Error of Estimate = .50

HEGIS Code: 0000

Number of Majors = 241